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ttgtttgccca aactggtggg caatatcgcc gaagacggcg gcaaaactgac ggattaccta 420
gtttcgcatg ccgccctgca accctatcag gcaggcaaaa gcggctatgc cgccgtgcag 480
aacggacgct atgtgctgga aatcgacagc gaaggggcgt tttatttccg ccgccgccat 540
tattga 546

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<210> 712  
 <211> 181  
 <212> PRT  
 <213> *Neisseria meningitidis*

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<400> 712
Met Leu Lys Thr Ser Phe Ala Val Leu Gly Gly Cys Leu Leu Leu Ala
  1             5             10             15

Ala Cys Gly Lys Ser Glu Asn Thr Ala Glu Gln Pro Gln Asn Ala Val
          20             25             30

Gln Ser Ala Pro Lys Pro Val Phe Lys Val Lys Tyr Ile Asp Asn Thr
      35             40             45

Ala Ile Ala Gly Leu Asp Leu Gly Gln Ser Ser Glu Gly Lys Thr Asn
  50             55             60

Asp Gly Lys Lys Gln Ile Ser Tyr Pro Ile Lys Gly Leu Pro Glu Gln
  65             70             75             80

Asn Val Ile Arg Leu Ile Gly Lys His Pro Gly Asp Leu Glu Ala Val
          85             90             95

Ser Gly Lys Cys Met Glu Thr Asp Asp Lys Asp Ser Pro Ala Gly Trp
      100             105             110

Ala Glu Asn Gly Val Cys His Thr Leu Phe Ala Lys Leu Val Gly Asn
      115             120             125

Ile Ala Glu Asp Gly Gly Lys Leu Thr Asp Tyr Leu Val Ser His Ala
      130             135             140

Ala Leu Gln Pro Tyr Gln Ala Gly Lys Ser Gly Tyr Ala Ala Val Gln
      145             150             155             160

Asn Gly Arg Tyr Val Leu Glu Ile Asp Ser Glu Gly Ala Phe Tyr Phe
      165             170             175

Arg Arg Arg His Tyr
      180

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<210> 713  
 <211> 330  
 <212> DNA  
 <213> *Neisseria meningitidis*

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<400> 713
cctcttaaag gcttgccgga acaaaacgtc gtccggctga ccggcaagca tcccaacgac 60
ttggaagccg tcgtcggcaa atgtatggaa accgacggaa agggcgcgcc ttcgggctgg 120

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gcggaacacg gcgtgtgcca taccttggtt gccaaactgg tgggcaatat cgccgaagac 180  
ggcggaacac tgacggatta cctgatttcg cattccgccc tgcaacccta tcaggcaggc 240  
aaaagcggt atgccgccgt gcagaacgga cgctatgtgc tggaaatcga cagcgagggg 300  
gcgtttttatt tccgccgccg ccattattga 330

<210> 714  
<211> 109  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 714  
Pro Leu Lys Gly Leu Pro Glu Gln Asn Val Val Arg Leu Thr Gly Lys  
1 5 10 15  
His Pro Asn Asp Leu Glu Ala Val Val Gly Lys Cys Met Glu Thr Asp  
20 25 30  
Gly Lys Gly Ala Pro Ser Gly Trp Ala Ala Asn Gly Val Cys His Thr  
35 40 45  
Leu Phe Ala Lys Leu Val Gly Asn Ile Ala Glu Asp Gly Gly Lys Leu  
50 55 60  
Thr Asp Tyr Leu Ile Ser His Ser Ala Leu Gln Pro Tyr Gln Ala Gly  
65 70 75 80  
Lys Ser Gly Tyr Ala Ala Val Gln Asn Gly Arg Tyr Val Leu Glu Ile  
85 90 95  
Asp Ser Glu Gly Ala Phe Tyr Phe Arg Arg Arg His Tyr  
100 105

<210> 715  
<211> 534  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 715  
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ggcagcagct ccggcaaac ccgccaaccg aaaccacaaac agacagtccg gcaaatccaa 120  
gcggtccgca tcagccacat cggccgcaca caaggctcgc aggaactcat gctccacagc 180  
ctcgagactca tcggcacgcc ctacaaatgg ggcggcagca gcaccgcaac cggcttcgac 240  
tgcagcggca tgattcaatt gggtttacaaa aacgccctca acgtcaagct gccgcgcacc 300  
gcccgcgaca tggcgggcggc aagccgcaaa atccccgaca gccgcctcaa ggccggcgac 360  
atcgatttct tcaacaccgg cggcgcacac cgctactcac acgtcggact ctacatcggc 420  
aacggcgaat tcatccatgc ccccggcagc ggcaaaacca tcaaaaccga aaaactctcc 480  
acaccgtttt acgccaaaaa ctaccttgga gcgcatacgt tttttacaga atga 534

<210> 716  
<211> 177  
<212> PRT  
<213> *Neisseria gonorrhoeae*

<400> 716



Met Phe Ser Pro Asp Lys Thr Leu Phe Leu Cys Leu Gly Ala Leu Leu  
 1 5 10 15  
 Leu Ala Ser Cys Gly Thr Thr Ser Gly Lys His Arg Gln Pro Lys Pro  
 20 25 30  
 Lys Gln Thr Val Arg Gln Ile Gln Ala Val Arg Ile Ser His Ile Gly  
 35 40 45  
 Arg Thr Gln Gly Ser Gln Glu Leu Met Leu His Ser Leu Gly Leu Ile  
 50 55 60  
 Gly Thr Pro Tyr Lys Trp Gly Gly Ser Ser Thr Ala Thr Gly Phe Asp  
 65 70 75 80  
 Cys Ser Gly Met Ile Gln Leu Val Tyr Lys Asn Ala Leu Asn Val Lys  
 85 90 95  
 Leu Pro Arg Thr Ala Arg Asp Met Ala Ala Ala Ser Arg Lys Ile Pro  
 100 105 110  
 Asp Ser Arg Leu Lys Ala Gly Asp Ile Val Phe Phe Asn Thr Gly Gly  
 115 120 125  
 Ala His Arg Tyr Ser His Val Gly Leu Tyr Ile Gly Asn Gly Glu Phe  
 130 135 140  
 Ile His Ala Pro Gly Ser Gly Lys Thr Ile Lys Thr Glu Lys Leu Ser  
 145 150 155 160  
 Thr Pro Phe Tyr Ala Lys Asn Tyr Leu Gly Ala His Thr Phe Phe Thr  
 165 170 175

Glu

<210> 717  
 <211> 534  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 717  
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 ggcacgacct ccggcaaaca ccgccaaccg aaacccaaac agacagtccg gcaaatacaa 120  
 gccgtccgca tcagccacat cgaccgcaca caaggctcgc aggaactcat gctccacagc 180  
 ctcggactca tcggcacgcc ctacaaatgg ggccggcagca gcaccgcaac cggcttcgat 240  
 tgcagcggca tgattcaatt cgtttacaar aacgccctca acgtcaagct gccgcgcacc 300  
 gcccgcgaca tggcggcggc aagccgsaaa atccccgaca gccgcytaa ggccggcgac 360  
 ctcgtattct tcaacaccgg cggcgcacac cgctactcac acgtcggact ctacatcggc 420  
 aacggcgaat tcatccatgc ccccagcagc ggcaaaacca tcaaaaccga aaaactctcc 480  
 acaccgtttt acgccaaaaa ctacctcggc gcacatactt tttttacaga atga 534

<210> 718  
 <211> 177  
 <212> PRT

<213> Neisseria meningitidis

<400> 718

Met Phe Pro Pro Asp Lys Thr Leu Phe Leu Cys Leu Ser Ala Leu Leu  
1 5 10 15  
Leu Ala Ser Cys Gly Thr Thr Ser Gly Lys His Arg Gln Pro Lys Pro  
20 25 30  
Lys Gln Thr Val Arg Gln Ile Gln Ala Val Arg Ile Ser His Ile Asp  
35 40 45  
Arg Thr Gln Gly Ser Gln Glu Leu Met Leu His Ser Leu Gly Leu Ile  
50 55 60  
Gly Thr Pro Tyr Lys Trp Gly Gly Ser Ser Thr Ala Thr Gly Phe Asp  
65 70 75 80  
Cys Ser Gly Met Ile Gln Phe Val Tyr Lys Asn Ala Leu Asn Val Lys  
85 90 95  
Leu Pro Arg Thr Ala Arg Asp Met Ala Ala Ala Ser Arg Lys Ile Pro  
100 105 110  
Asp Ser Arg Xaa Lys Ala Gly Asp Leu Val Phe Phe Asn Thr Gly Gly  
115 120 125  
Ala His Arg Tyr Ser His Val Gly Leu Tyr Ile Gly Asn Gly Glu Phe  
130 135 140  
Ile His Ala Pro Ser Ser Gly Lys Thr Ile Lys Thr Glu Lys Leu Ser  
145 150 155 160  
Thr Pro Phe Tyr Ala Lys Asn Tyr Leu Gly Ala His Thr Phe Phe Thr  
165 170 175

Glu

<210> 719

<211> 534

<212> DNA

<213> Neisseria meningitidis

<400> 719

atgtttcccc ccgacaaaac ccttttctct tgtctcagcg cactgctcct cgcctcatgc 60  
ggcacgacct ccggcaaaaca ccgccaaccg aaacccaaac agacagtcgg gcaaataccaa 120  
gocgtccgca tcagccacat cgaccgcaca caaggctcgc aggaactcat gctccacagc 180  
ctcggactca tcggcacgcc ctacaaatgg ggcggcagca gcaccgcaac cggcttcgat 240  
tgcagcggca tgattcaatt cgtttacaaa aacgccctca acgtcaagct gccgcgcacc 300  
gcccgcgaca tggcgggcggc aagccgcaaa atccccgaca gccgccttaa ggccggcgac 360  
ctcgtattct tcaacaccgg cggcgcacac cgctactcac acgtcggact ctatatcggc 420  
aacggcgaat tcatccatgc ccccagcagc ggcaaaacca tcaaaaccga aaaactctcc 480  
acaccgtttt acgccaacaaa ctacctcggc gcacatactt tctttacaga atga 534

<210> 720  
 <211> 177  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 720  
 Met Phe Pro Pro Asp Lys Thr Leu Phe Leu Cys Leu Ser Ala Leu Leu  
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 Leu Ala Ser Cys Gly Thr Thr Ser Gly Lys His Arg Gln Pro Lys Pro  
                     20                    25                    30  
 Lys Gln Thr Val Arg Gln Ile Gln Ala Val Arg Ile Ser His Ile Asp  
                     35                    40                    45  
 Arg Thr Gln Gly Ser Gln Glu Leu Met Leu His Ser Leu Gly Leu Ile  
                     50                    55                    60  
 Gly Thr Pro Tyr Lys Trp Gly Gly Ser Ser Thr Ala Thr Gly Phe Asp  
                     65                    70                    75                    80  
 Cys Ser Gly Met Ile Gln Phe Val Tyr Lys Asn Ala Leu Asn Val Lys  
                     85                    90                    95  
 Leu Pro Arg Thr Ala Arg Asp Met Ala Ala Ala Ser Arg Lys Ile Pro  
                     100                    105                    110  
 Asp Ser Arg Leu Lys Ala Gly Asp Leu Val Phe Phe Asn Thr Gly Gly  
                     115                    120                    125  
 Ala His Arg Tyr Ser His Val Gly Leu Tyr Ile Gly Asn Gly Glu Phe  
                     130                    135                    140  
 Ile His Ala Pro Ser Ser Gly Lys Thr Ile Lys Thr Glu Lys Leu Ser  
                     145                    150                    155                    160  
 Thr Pro Phe Tyr Ala Lys Asn Tyr Leu Gly Ala His Thr Phe Phe Thr  
                     165                    170                    175  
 Glu

<210> 721  
 <211> 780  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 721  
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 gatgtgccac tgctgggcga tggtcaggag gttgttgacc acccagtaga gaaccaaacc 120  
 ggcaggggaag aagaagaaca tgacggagaa aaccaacggc atgattttca tcattttcgc 180  
 ctgcatcggg tcggtcggcg gcgggttcag ataggtttgg gcgaacatcg ttgccgccat 240  
 aatgatgggc aggatgtagt aggggtcggc gcggctgagg tcggtaatcc agcccagcca 300  
 aggtgcctgg cgcaattcta cggaggcgaa caatgcccg tacaagccga tgaagacggg 360  
 gatttgcaac agcataggca gacagccgcc cagcgggttg atttcctcgt .cttcgaaaag 420  
 ctgcatcatc gcttgctgtt gcgccatacg gtcgtcgccg tatttttctt tgatggtctg 480

cagttcgggt gcggcggcac gcattttcgc catcgaacgg taggaggcgt tgggtcaatgg 540  
 atacagtacg gctttgacga tgatgggtcaa aacgacgatt gccagcccc agttgccgat 600  
 aatgttggtc agttgggttca ggagccagaa gagcggcgat gcgaaccagt gtactttacc 660  
 gtagtctttt gccagttgca gggtgtcggc gatgtttgcg ataacggatg tggtttgcgg 720  
 accggcatac aggttgaccg ccattttcgg ttttggcccc cgggttgga tagcgggtaa 780

<210> 722

<211> 259

<212> PRT

<213> Neisseria gonorrhoeae

<400> 722

Met	Leu	Arg	His	Leu	Gly	Asn	Asp	Phe	Ala	Leu	Gly	Ala	Leu	Phe	Phe	1	5	10	15
Asp	Ala	Ala	Val	Asp	Val	Pro	Leu	Leu	Gly	Asp	Gly	Gln	Glu	Val	Val	20	25	30	
Asp	His	Pro	Val	Glu	Asn	Gln	Thr	Gly	Arg	Glu	Glu	Glu	Glu	His	Asp	35	40	45	
Gly	Glu	Asn	Gln	Arg	His	Asp	Phe	His	His	Phe	Arg	Leu	His	Arg	Val	50	55	60	
Gly	Arg	Arg	Arg	Val	Gln	Ile	Gly	Leu	Gly	Glu	His	Arg	Cys	Arg	His	65	70	75	80
Asn	Asp	Gly	Gln	Asp	Val	Val	Gly	Val	Gly	Ala	Ala	Glu	Val	Gly	Asn	85	90	95	
Pro	Ala	Gln	Pro	Arg	Cys	Leu	Ala	Gln	Phe	Tyr	Gly	Gly	Glu	Gln	Cys	100	105	110	
Pro	Val	Gln	Ala	Asp	Glu	Asp	Gly	Asp	Leu	Gln	Gln	His	Arg	Gln	Thr	115	120	125	
Ala	Ala	Gln	Arg	Val	Asp	Phe	Leu	Val	Phe	Glu	Lys	Leu	His	His	Arg	130	135	140	
Leu	Leu	Leu	Arg	His	Thr	Val	Val	Ala	Val	Phe	Phe	Phe	Asp	Gly	Leu	145	150	155	160
Gln	Phe	Gly	Cys	Gly	Gly	Thr	His	Phe	Arg	His	Arg	Thr	Val	Gly	Gly	165	170	175	
Val	Gly	Gln	Trp	Ile	Gln	Tyr	Gly	Phe	Asp	Asp	Asp	Gly	Gln	Asn	Asp	180	185	190	
Asp	Cys	Pro	Ala	Pro	Val	Ala	Asp	Asn	Val	Val	Gln	Leu	Val	Gln	Glu	195	200	205	
Pro	Glu	Glu	Arg	Arg	Cys	Glu	Pro	Val	Tyr	Phe	Thr	Val	Val	Phe	Cys	210	215	220	
Gln	Leu	Gln	Val	Val	Gly	Asp	Val	Cys	Asp	Asn	Gly	Cys	Gly	Leu	Arg	225	230	235	240

Thr Gly Ile Gln Val Asp Arg His Phe Arg Phe Trp Pro Pro Gly Trp

245

250

255

Asp Ser Gly

<210> 723

<211> 1025

<212> DNA

<213> Neisseria meningitidis

<400> 723

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atgtgccatt gctggggcgat ggtcaggagg ttgttgacta cccagtacaa taccagaccg 120
gcagggaaga agaagaacat gacggagaaa accaacggca tgattttcat cattttcgcc 180
tgcacgcggg cggtcggcgg cggttcgaga taagtttggg cgaacatcgt tgccgccata 240
atgatgggca ggatgtagta ggggtcggcg cggtgaggt cggtaatcca acccagccaa 300
gggtgcctggc gcaattctac ggaggcgaac aatgcccaat acaatccgat gaagacgggg 360
atttgcaaca gcataggcag gcagccgccc agcgggttga tttctcgtc tgtgtaaagc 420
tgcacatcgt cctgttggtg cgccatacgg tcgtcgccgt atttctctt gatggcttgc 480
agtttgggtg cggcggcacg cattttcgcc atagagcggg aagaggcggt ggtcaatgga 540
tacagtacgg ctttgacgat gatggttaaa acgataatcg cccagcccca gttgccgatg 600

atgttgtgca gttggttcag gagccagaag agcggggagg cgaaccagtg tactttgccg 660
tagtcttttg ccagttgcag gttgtcggcg atgtttgcga tgacggatgt ggtctgcggg 720
ccggcgtaga ggttgatgga ggcttcgggt tcgcgcggtt ttggatggcg gctaaaggca 780
cgctgacgct ggtgctgtac agcttgctgt tcgggcggtt gatgtcgatg ttgcactcgc 840
ctgcggcgca aacgctttgt ctgcctttag gttggagaat ccagggtggac atgaagtggg 900
gttcaatcat gccgagccag ccggtcgggg ttttgcggat gtattcggcc tcggatttgc 960
cggatttggc atcgtcgtcc aagtcggaaa agctgacttt ttggaagtgt ccttcagggg 1020
tataa 1025
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<210> 724

<211> 340

<212> PRT

<213> Neisseria meningitidis

<400> 724

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Met Leu Arg His Leu Gly Asn Asp Phe Ala Leu Gly Ala Leu Phe Phe
  1             5             10            15

Asp Ala Ala Val Asp Val Pro Leu Leu Gly Asp Gly Gln Glu Val Val
    20             25             30

Asp Tyr Pro Val Gln Tyr Gln Thr Gly Arg Glu Glu Glu Glu His Asp
    35             40             45

Gly Glu Asn Gln Arg His Asp Phe His His Phe Arg Leu His Arg Val
    50             55             60

Gly Arg Arg Arg Val Gln Ile Ser Leu Gly Glu His Arg Cys Arg His
    65             70             75             80
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Asn Asp Gly Gln Asp Val Val Gly Val Gly Ala Ala Glu Val Gly Asn  
                             85                            90                            95  
 Pro Thr Gln Pro Arg Cys Leu Ala Gln Phe Tyr Gly Gly Glu Gln Cys  
                             100                            105                            110  
 Pro Ile Gln Ser Asp Glu Asp Gly Asp Leu Gln Gln His Arg Gln Ala  
                             115                            120                            125  
 Ala Ala Gln Arg Val Asp Phe Leu Val Cys Val Lys Leu His His Arg  
                             130                            135                            140  
 Leu Leu Leu Arg His Thr Val Val Ala Val Phe Leu Phe Asp Gly Leu  
                             145                            150                            155                            160  
 Gln Phe Gly Cys Gly Gly Thr His Phe Arg His Arg Ala Val Arg Gly  
                             165                            170                            175  
 Val Gly Gln Trp Ile Gln Tyr Gly Phe Asp Asp Asp Gly Asn Asp Asn  
                             180                            185                            190  
 Arg Pro Ala Pro Val Ala Asp Asp Val Val Gln Leu Val Gln Glu Pro  
                             195                            200                            205  
 Glu Glu Arg Gly Gly Glu Pro Val Tyr Phe Ala Val Val Phe Gly Gln  
                             210                            215                            220  
 Leu Gln Val Val Gly Asp Val Cys Asp Asp Gly Cys Gly Leu Arg Ala  
                             225                            230                            235                            240  
 Gly Val Glu Val Asp Gly Gly Phe Gly Phe Ala Pro Phe Trp Met Ala  
                             245                            250                            255  
 Ala Lys Gly Thr Leu Thr Leu Val Leu Tyr Ser Leu Ser Leu Arg Arg  
                             260                            265                            270  
 Leu Met Ser Met Leu His Ser Pro Ala Ala Gln Thr Leu Cys Leu Pro  
                             275                            280                            285  
 Leu Gly Trp Arg Ile Gln Val Asp Met Lys Trp Cys Ser Ile Met Pro  
                             290                            295                            300  
 Ser Gln Pro Val Gly Val Leu Arg Met Tyr Ser Ala Ser Asp Leu Pro  
                             305                            310                            315                            320  
 Asp Leu Ala Ser Ser Ser Lys Ser Glu Lys Leu Thr Phe Trp Lys Leu  
                             325                            330                            335  
 Pro Ser Gly Val  
                             340

<210> 725

<211> 1026

<212> DNA

<213> Neisseria meningitidis

<400> 725

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gatgtgccat tgctgggcga tggtcaggag gttgttgatc acccagtaca ataccagacc 120
ggcagggaag aagaagaaca tgacggagaa aaccaaaggc atgattttca tcatttttcgc 180
ctgcatcggg tcggtcggcg gcgggttcag ataggttttg gcgaacatcg ttgccgccat 240
aatgatgggc aggatgtagt aggggtcggc gcggctgagg tcggtaatcc aaccagcca 300
aggtgcctgg cgcaattcta cggaggcgaa caatgccaa tacaatccga tgaagacggg 360
gatttgcaac agcataggca ggcagccgcc cagcgggttg attttctcgt ctgtgtaaag 420
ctgcatcatg gcttgttgct gcgccatacg gtcgtcgccg tatttctctt tgatggcttg 480
cagtttgggc gcggcggcac gcatttttcgc catcgaacgg taagaggcgt tggccaatgg 540
atacagtaag gctttgacga tgatggttaa aacgataatc gccagcccc agttgccgat 600
gatgttgatc agttggttca aaagccaaaa gaggggggag gcgaaccagt gtactttgcc 660
gtagtctttg gccagttgca ggttgtcggc gatgtttgcg ataacggatg tggctctgtg 720
gccgcgtag aggttgatgg aggttcgggt ttgcaccgt tttggatagc ggctaaaggc 780
acgctgacgc tgggtgctga cagcttgctg ttgcggcgtt tgatgtcgat acggcagtcg 840
ccagcggcgc aaacgctttg tccgcctttg ggttgaggga tccaggtgga catgaagtgg 900
tgttcaatca tgccgagcca gccggtcggg gttttgcgga tgtattcggc ctcggatttg 960
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gtataa 1026
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<210> 726

<211> 340

<212> PRT

<213> *Neisseria meningitidis*

<400> 726

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Met Leu Arg His Leu Gly Asn Asp Phe Ala Leu Gly Ala Leu Phe Phe
  1             5             10            15

Asp Ala Ala Val Asp Val Pro Leu Leu Gly Asp Gly Gln Glu Val Val
    20             25             30

Asp His Pro Val Gln Tyr Gln Thr Gly Arg Glu Glu Glu Glu His Asp
    35             40             45

Gly Glu Asn Gln Arg His Asp Phe His His Phe Arg Leu His Arg Val
    50             55             60

Gly Arg Arg Arg Val Gln Ile Gly Leu Gly Glu His Arg Cys Arg His
    65             70             75             80

Asn Asp Gly Gln Asp Val Val Gly Val Gly Ala Ala Glu Val Gly Asn
    85             90             95

Pro Thr Gln Pro Arg Cys Leu Ala Gln Phe Tyr Gly Gly Glu Gln Cys
   100            105            110

Pro Ile Gln Ser Asp Glu Asp Gly Asp Leu Gln Gln His Arg Gln Ala
   115            120            125

Ala Ala Gln Arg Val Asp Phe Leu Val Cys Val Lys Leu His His Gly
   130            135            140

Leu Leu Leu Arg His Thr Val Val Ala Val Phe Leu Phe Asp Gly Leu
   145            150            155            160
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Gln Phe Gly Arg Gly Gly Thr His Phe Arg His Arg Thr Val Arg Gly  
 165 170 175  
 Val Gly Gln Trp Ile Gln Tyr Gly Phe Asp Asp Asp Gly Asn Asp Asn  
 180 185 190  
 Arg Pro Ala Pro Val Ala Asp Asp Val Val Gln Leu Val Gln Lys Pro  
 195 200 205  
 Lys Glu Gly Gly Gly Glu Pro Val Tyr Phe Ala Val Val Phe Gly Gln  
 210 215 220  
 Leu Gln Val Val Gly Asp Val Cys Asp Asn Gly Cys Gly Leu Trp Ala  
 225 230 235 240  
 Gly Val Glu Val Asp Gly Gly Phe Gly Phe Ala Pro Phe Trp Ile Ala  
 245 250 255  
 Ala Lys Gly Thr Leu Thr Leu Val Leu Tyr Ser Leu Ser Leu Arg Arg  
 260 265 270  
 Leu Met Ser Ile Arg Gln Ser Pro Ala Ala Gln Thr Leu Cys Pro Pro  
 275 280 285  
 Leu Gly Trp Arg Ile Gln Val Asp Met Lys Trp Cys Ser Ile Met Pro  
 290 295 300  
 Ser Gln Pro Val Gly Val Leu Arg Met Tyr Ser Ala Ser Asp Leu Pro  
 305 310 315 320  
 Asp Leu Ala Ser Ser Ser Lys Ser Glu Lys Leu Thr Phe Trp Lys Leu  
 325 330 335  
 Pro Ser Gly Val  
 340

<210> 727  
 <211> 525  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 727  
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 attgtagtcg gcgcgtccgg gcgtgccgct gtaacggtag ccgtggcgca attcgagcgt 180  
 gcgtttgttg tccttcagcg agaagttacc ttctttggcg aagatgatgt tgtcgccgcc 240  
 gtttttgtcc tgttcgcgca ggaacaggtt tttcatgatg ccggattcgg tgtcaaaagg 300  
 ttcgacgaaa taaacctgc cgttgcgctt gcccaagtta ttgaaactcg cggtttccac 360  
 caaagacaat tcctgcttct gcttcaaaat ttcggcatat tcgcggctgc gcagctctgc 420  
 ccacggtatc acccaaagct gcatgacggc aatcaggatg gcaaacggca cggcaaactg 480  
 catgacgggg cgtatccact gtttcaacgc caatccgcag gatag 525

<210> 728  
 <211> 174



<212> PRT  
<213> Neisseria gonorrhoeae

<400> 728  
Met Leu Arg Ile Ala Ala Ala Asn Gln Leu Gly Gly Arg Asn Gly Ala  
1 5 10 15  
Ala Val Gly Asn Gly Val Asp Lys Phe Gly Arg Gly Ala Asp Asn Gln  
20 25 30  
Val Glu Phe Leu Glu Gly Asn Leu Ile Val Val Gly Ala Ser Gly Arg  
35 40 45  
Ala Ala Val Thr Val Ala Val Ala Gln Phe Glu Arg Ala Phe Val Val  
50 55 60  
Leu Gln Arg Glu Val Thr Phe Phe Gly Glu Asp Asp Val Val Ala Ala  
65 70 75 80  
Val Phe Val Leu Phe Ala Gln Glu Gln Val Phe His Asp Ala Gly Phe  
85 90 95  
Gly Val Lys Gly Phe Asp Glu Ile Asn Pro Ala Val Ala Leu Ala Gln  
100 105 110  
Val Ile Glu Leu Ala Gly Phe His Gln Arg Gln Phe Leu Leu Leu Leu  
115 120 125  
Gln Asn Phe Gly Ile Phe Ala Ala Ala Gln Leu Cys Pro Arg Tyr His  
130 135 140  
Pro Lys Leu His Asp Gly Asn Gln Asp Gly Lys Arg His Gly Lys Leu  
145 150 155 160  
His Asp Gly Ala Tyr Pro Leu Phe Gln Arg Gln Ser Ala Gly  
165 170

<210> 729  
<211> 525  
<212> DNA  
<213> Neisseria meningitidis

<400> 729  
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ggggtcgatg agtttgggcg tgggtctgat aatcaggttg agtttttgga aggaaacctg 120  
attgtagtcg gcgcgtccgg gcgtgccgct gtaacggtag ccgtggcgca attcgagcgt 180  
gcgtttgttg tcgttcagcg agaagttacc ttctttggcg aagatgatgt tgcgccgcc 240  
gtttttgtcc tgttcgcgca ggaacagggt ttcatgatg ccgattcgg tatcgaaggt 300  
ttcgacaaaa taaacctgc cgttgcgctt gcccaactg ttgaactcgc ctgcctccac 360  
caaagacaat tcctgcttct gcttcaggat ttcagcgtat tcgcggctgc gtagctctgc 420  
ccacggtatc acccaaagct gcatgacggc aaccaaaacg gcaaacggca cggcaaacgt 480  
catcaccggg cgtatccatt gtttcaatgc caatccgcag gatag 525

<210> 730  
<211> 174

<212> PRT

<213> *Neisseria meningitidis*

<400> 730

Met Leu Arg Val Ala Ala Ala Asn Gln Leu Gly Gly Arg Asn Gly Thr  
1 5 10 15

Ala Val Gly Asn Gly Val Asp Glu Phe Gly Arg Gly Ala Asp Asn Gln  
20 25 30

Val Glu Phe Leu Glu Gly Asn Leu Ile Val Val Gly Ala Ser Gly Arg  
35 40 45

Ala Ala Val Thr Val Ala Val Ala Gln Phe Glu Arg Ala Phe Val Val  
50 55 60

Val Gln Arg Glu Val Thr Phe Phe Gly Glu Asp Asp Val Val Ala Ala  
65 70 75 80

Val Phe Val Leu Phe Ala Gln Glu Gln Val Phe His Asp Ala Gly Phe  
85 90 95

Gly Ile Glu Gly Phe Asp Lys Ile Asn Pro Ala Val Ala Leu Ala Gln  
100 105 110

Thr Val Glu Leu Ala Cys Leu His Gln Arg Gln Phe Leu Leu Leu Leu  
115 120 125

Gln Asp Phe Ser Val Phe Ala Ala Ala Xaa Leu Cys Pro Arg Tyr His  
130 135 140

Pro Lys Leu His Asp Gly Asn Gln Asn Gly Lys Arg His Gly Lys Leu  
145 150 155 160

His His Arg Ala Tyr Pro Leu Phe Gln Cys Gln Ser Ala Gly  
165 170

<210> 731

<211> 525

<212> DNA

<213> *Neisseria meningitidis*

<400> 731

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attgtagtcg gcgcgtccgg gcgtgccgct gtaacggtag ccgtggcgca attcgagcgt 180  
gcgtttgttg tcgttcagcg agaagttact ttctttggcg aagatgatgt tgtcgcgcgc 240  
gtttttgtcc tgttcgcgca ggaacaggtt tttcatgatg ccggaattcg tatcgaaggt 300  
ttcgacaaaa taaaccttgc cgttgcgctt gcccaaactg ttgaaccgcg ctgcctccac 360  
caaagacaat tcctgcttct gcttcaggat ttcagcgtat tcgcggctgc gtagctctgc 420  
ccacggatc acccaaagct gcatgacggc aaccaaacg gcaaacggca cggcaaactg 480  
catcaccggg cgtatccatt gtttcaatgc caatccgcag gatag 525

<210> 732

<211> 173

<212> PRT

<213> *Neisseria meningitidis*

<400> 732

Met Leu Arg Val Ala Ala Ala Asn Gln Leu Gly Gly Arg Asn Gly Thr  
1 5 10 15

Ala Val Gly Asn Gly Val Asp Glu Phe Gly Arg Gly Ala Asp Asn Gln  
20 25 30

Val Glu Phe Leu Glu Gly Asn Leu Ile Val Val Gly Ala Ser Gly Arg  
35 40 45

Ala Ala Val Thr Val Ala Val Ala Gln Phe Glu Arg Ala Phe Val Val  
50 55 60

Val Gln Arg Glu Val Thr Phe Phe Gly Glu Asp Asp Val Val Ala Ala  
65 70 75 80

Val Phe Val Leu Phe Ala Gln Glu Gln Val Phe His Asp Ala Gly Phe  
85 90 95

Gly Ile Glu Gly Phe Asp Lys Ile Asn Pro Ala Val Ala Leu Ala Gln  
100 105 110

Thr Val Glu Pro Ala Cys Leu His Gln Arg Gln Phe Leu Leu Leu Leu  
115 120 125

Gln Asp Phe Ser Val Phe Ala Ala Ala Leu Cys Pro Arg Tyr His Pro  
130 135 140

Lys Leu His Asp Gly Asn Gln Asn Gly Lys Arg His Gly Lys Leu His  
145 150 155 160

His Arg Ala Tyr Pro Leu Phe Gln Cys Gln Ser Ala Gly  
165 170

<210> 733

<211> 1263

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 733

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caaaccgcac aagatgcttc ggactcggaa tgccgtctga agcaccgttt ggatcaggca 180  
accagtgcc tccagttcga cagcatcaac ctcatcgaac acatcctgcc cgatgtccgc 240  
ttctggctgg ttcccccttc acgcaccgc cgctgcacg aacacttcca ccacatttcc 300  
tggcagaccg aagccatccc gcaaaccgaa agcaagtccg acaaaccctg gtttgcactt 360  
ccacaaacat ccgaacggaa aaaaccggaa cacgtcctcg tcatcggtgc aggcattgcc 420  
ggcgcacga ccgcccacgc cttagcatca cacggcattt ccgttaccgt attggaagcc 480  
cgaaaagccg ctcaagccgc cagcggcaac cggcaagggc tgctttacgc caaaatctcg 540  
ccgcacgaca ccggacagac cgaactgctg cttgccggct acggctacac caaacgcctg 600  
ctcggacaca tcttgcccga ctccgacact tggggcggca acggcatcat ccacctcaat 660  
tacagccgca ccgaacaaca acgcaatcac gaattgggtt tgcaaaaaca ccataaccac 720  
ctctaccgca gcatcacgtc tgcagaagcc gaaaaaatcg ccggcatccc gctgaacacg 780

```

ccctacgccg aaccattatg cggactctac tggcaacacg gcgtatggct caatccgccc 840
gcattcgtcc gcaccctcct cagccatccg ctgatcgaac tatatgaaaa cacaacgtta 900
accggcattt cccacgacgg agaaaagtgg attgcaagca cgccaaacgg cacatttacc 960
gccacacaca tcattctactg caccggcgcg cacagcccct gcctgcccga aaccaacctc 1020
gccgccttac cctcaggca aatacgcgga caaaccggcc tcacaccgtc caccctgttt 1080
tccgaacaac tgcgttgcgc cgtttcaggc gaaagctaca tcagcccgtc gtggcacgga 1140
ctgcactgct acggcgcgag ttttattccc aacagcagca ataccggatg gaacgaagcc 1200
gaagaagcct caaaccgcca agcattggca caccttaacc ccgcccttgc cgaatcattg 1260
ttt
1263

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<210> 734

<211> 421

<212> PRT

<213> Neisseria gonorrhoeae

<400> 734

```

Met Asp Asn Leu Val Trp Asp Gly Ile Pro Asp Ile Arg Thr Leu Asp
 1             5             10             15

```

```

Gln Thr Ile Arg Lys His Ala His Pro Leu Asn Leu Ile Val Cys Leu
      20             25             30

```

```

Pro Asp Asn Gln Ile Pro Asp Phe Gln Thr Ala Gln Asp Ala Ser Asp
      35             40             45

```

```

Ser Glu Cys Arg Leu Lys His Arg Leu Asp Gln Ala Thr Gln Cys Leu
      50             55             60

```

```

Gln Phe Asp Ser Ile Asn Leu Ile Glu His Ile Leu Pro Asp Val Arg
      65             70             75             80

```

```

Phe Trp Leu Val Pro Pro Ser Arg Thr Arg Arg Leu His Glu His Phe
      85             90             95

```

```

His His Ile Ser Trp Gln Thr Glu Ala Ile Pro Gln Thr Glu Ser Lys
      100            105            110

```

```

Ser Asp Lys Pro Trp Phe Ala Leu Pro Gln Thr Ser Glu Arg Lys Lys
      115            120            125

```

```

Pro Glu His Val Leu Val Ile Gly Ala Gly Ile Ala Gly Ala Ser Thr
      130            135            140

```

```

Ala His Ala Leu Ala Ser His Gly Ile Ser Val Thr Val Leu Glu Ala
      145            150            155            160

```

```

Arg Lys Ala Ala Gln Ala Ala Ser Gly Asn Arg Gln Gly Leu Leu Tyr
      165            170            175

```

```

Ala Lys Ile Ser Pro His Asp Thr Gly Gln Thr Glu Leu Leu Leu Ala
      180            185            190

```

```

Gly Tyr Gly Tyr Thr Lys Arg Leu Leu Gly His Ile Leu Pro Asp Ser
      195            200            205

```

```

Asp Thr Trp Gly Gly Asn Gly Ile Ile His Leu Asn Tyr Ser Arg Thr

```

210	215	220
Glu Gln Gln Arg Asn His Glu Leu Gly Leu Gln Lys His His Asn His		
225	230	235 240
Leu Tyr Arg Ser Ile Thr Ser Ala Glu Ala Glu Lys Ile Ala Gly Ile		
	245	250 255
Pro Leu Asn Thr Pro Tyr Ala Glu Pro Leu Cys Gly Leu Tyr Trp Gln		
	260	265 270
His Gly Val Trp Leu Asn Pro Pro Ala Phe Val Arg Thr Leu Leu Ser		
	275	280 285
His Pro Leu Ile Glu Leu Tyr Glu Asn Thr Thr Leu Thr Gly Ile Ser		
	290	295 300
His Asp Gly Glu Lys Trp Ile Ala Ser Thr Pro Asn Gly Thr Phe Thr		
305	310	315 320
Ala Thr His Ile Ile Tyr Cys Thr Gly Ala His Ser Pro Cys Leu Pro		
	325	330 335
Glu Thr Asn Leu Ala Ala Leu Pro Leu Arg Gln Ile Arg Gly Gln Thr		
	340	345 350
Gly Leu Thr Pro Ser Thr Pro Phe Ser Glu Gln Leu Arg Cys Ala Val		
	355	360 365
Ser Gly Glu Ser Tyr Ile Ser Pro Ser Trp His Gly Leu His Cys Tyr		
	370	375 380
Gly Ala Ser Phe Ile Pro Asn Ser Ser Asn Thr Gly Trp Asn Glu Ala		
385	390	395 400
Glu Glu Ala Ser Asn Arg Gln Ala Leu Ala His Leu Asn Pro Ala Leu		
	405	410 415
Ala Glu Ser Leu Phe		
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<210> 735

<211> 1620

<212> DNA

<213> Neisseria meningitidis

<400> 735

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atggacaatc tcgtatggga cggcattccc gacatccgca cactcgacca agccatccgc 60
aaacacgcac ccccgctcaa cctgattatc tgcctccccg ataatcagat tcccgatttt 120
caaaccgcac aagatgcttc ggacgcggaa tgccgtctga agcaccgttt ggatcaggca 180
atgcagtgcc tccagttcga cagcatcaac ctcatcgaac acatcctgcc cgatgtccgc 240
ttctggctgg ttcccccttc acgcaccac cacctgcacg aacatttcca ccacatttcc 300
tggcagaccg aagccatccc gcaaaccgaa agcaagccccg acaaaccctg gtttgcactt 360
ccacaaacat ccgaacggca aaaaccggaa cacatcctcg ttatcggcgc gggcatatcc 420
ggcgcgggcaa ccgcccacgc cttagcatca cacggcattt ccggttaccgt attggaagcc 480

```

```

cgaaaagccg cccaagccgc cagcggcaac cgccaagggc tgctctacgc caaaatctcg 540
ccgcacgaca ccgaacagac cgaacttttg cttgccggct acggctacac caaacgcctg 600
ctcggacaca tcctgcccga atccgaaacc tggggcggca acggcatcat ccacctcaat 660
tacagccgca ccgaacaaca acgcaatcac gaattgggtt tgcaaaaaca ccataaccac 720
ctctaccgca gcatcacatc tgcagaagcc gaaaaaatcg ccggtatccc actgtccgtc 780
ccatacgacc acccttcatg cggactctac tggcaacacg gogtatggct caatccaccc 840
gcattcgtcc gcaccctcct caaccatccg ctcatgggac tacacgaaga cacacccttg 900
accgacattt cccacgacgg ggaaaagtgg attgcaagca cgccaaacgg cacatttacc 960
gccacacaca tcatctactg caccgggtgcg aacagcccct acctaccga aaccaacctc 1020
gccgcctcgc ctctcaggca aatacgcgga caaacgggcc tcacaccgtc caccgcgttt 1080
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gaagaagcct caaacgcgca agcattggca caccttaacc ccgcccttcc cgaatcattg 1260
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accaaactcg cgctggacaa aaactaccgc atcgacaccc catgcccata cctgcctaata 1440
gcctacgtca acaccgcgca cggcaccgcc ggactcgcca ccgcccccat ctgcgcgcgc 1500
gmcawtgcag cccaaatcst aggcytgccc catccctttt yacaacgcct gcgccacgcc 1560
ctacacccca accgcaccat catccgcgcc atcgtcagaa ggaaggatct aacccttaa 1620

```

<210> 736

<211> 539

<212> PRT

<213> *Neisseria meningitidis*

<400> 736

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Met Asp Asn Leu Val Trp Asp Gly Ile Pro Asp Ile Arg Thr Leu Asp
  1             5             10             15

```

```

Gln Ala Ile Arg Lys His Ala Pro Pro Leu Asn Leu Ile Ile Cys Leu
      20             25             30

```

```

Pro Asp Asn Gln Ile Pro Asp Phe Gln Thr Ala Gln Asp Ala Ser Asp
      35             40             45

```

```

Ala Glu Cys Arg Leu Lys His Arg Leu Asp Gln Ala Met Gln Cys Leu
      50             55             60

```

```

Gln Phe Asp Ser Ile Asn Leu Ile Glu His Ile Leu Pro Asp Val Arg
      65             70             75             80

```

```

Phe Trp Leu Val Pro Pro Ser Arg Thr His His Leu His Glu His Phe
      85             90             95

```

```

His His Ile Ser Trp Gln Thr Glu Ala Ile Pro Gln Thr Glu Ser Lys
     100             105             110

```

```

Pro Asp Lys Pro Trp Phe Ala Leu Pro Gln Thr Ser Glu Arg Gln Lys
     115             120             125

```

```

Pro Glu His Ile Leu Val Ile Gly Ala Gly Ile Ser Gly Ala Ala Thr
     130             135             140

```

```

Ala His Ala Leu Ala Ser His Gly Ile Ser Val Thr Val Leu Glu Ala
     145             150             155             160

```

Arg	Lys	Ala	Ala	Gln	Ala	Ala	Ser	Gly	Asn	Arg	Gln	Gly	Leu	Leu	Tyr	165	170	175	
Ala	Lys	Ile	Ser	Pro	His	Asp	Thr	Glu	Gln	Thr	Glu	Leu	Leu	Leu	Ala	180	185	190	
Gly	Tyr	Gly	Tyr	Thr	Lys	Arg	Leu	Leu	Gly	His	Ile	Leu	Pro	Glu	Ser	195	200	205	
Glu	Thr	Trp	Gly	Gly	Asn	Gly	Ile	Ile	His	Leu	Asn	Tyr	Ser	Arg	Thr	210	215	220	
Glu	Gln	Gln	Arg	Asn	His	Glu	Leu	Gly	Leu	Gln	Lys	His	His	Asn	His	225	230	235	240
Leu	Tyr	Arg	Ser	Ile	Thr	Ser	Ala	Glu	Ala	Glu	Lys	Ile	Ala	Gly	Ile	245	250	255	
Pro	Leu	Ser	Val	Pro	Tyr	Asp	His	Pro	Ser	Cys	Gly	Leu	Tyr	Trp	Gln	260	265	270	
His	Gly	Val	Trp	Leu	Asn	Pro	Pro	Ala	Phe	Val	Arg	Thr	Leu	Leu	Asn	275	280	285	
His	Pro	Leu	Ile	Gly	Leu	His	Glu	Asp	Thr	Pro	Leu	Thr	Asp	Ile	Ser	290	295	300	
His	Asp	Gly	Glu	Lys	Trp	Ile	Ala	Ser	Thr	Pro	Asn	Gly	Thr	Phe	Thr	305	310	315	320
Ala	Thr	His	Ile	Ile	Tyr	Cys	Thr	Gly	Ala	Asn	Ser	Pro	Tyr	Leu	Pro	325	330	335	
Glu	Thr	Asn	Leu	Ala	Ala	Leu	Pro	Leu	Arg	Gln	Ile	Arg	Gly	Gln	Thr	340	345	350	
Gly	Leu	Thr	Pro	Ser	Thr	Pro	Phe	Ser	Glu	Gln	Leu	Arg	Cys	Ala	Val	355	360	365	
Ser	Gly	Glu	Ser	Tyr	Ile	Ser	Pro	Ser	Trp	His	Gly	Leu	His	Cys	Tyr	370	375	380	
Gly	Ala	Ser	Phe	Ile	Pro	Asn	Ser	Ser	His	Thr	Gly	Trp	Asn	Glu	Ala	385	390	395	400
Glu	Glu	Ala	Ser	Asn	Arg	Gln	Ala	Leu	Ala	His	Leu	Asn	Pro	Ala	Leu	405	410	415	
Ser	Glu	Ser	Leu	Phe	Ala	Ala	Asn	Pro	Asn	Pro	Gln	Lys	His	Gln	Gly	420	425	430	
His	Ala	Ala	Ile	Arg	Cys	Asp	Ser	Pro	Asp	His	Leu	Pro	Leu	Val	Gly	435	440	445	
Ala	Leu	Gly	Asp	Ile	Ala	Ala	Met	Arg	Gln	Thr	Tyr	Thr	Lys	Leu	Ala	450	455	460	

Leu Asp Lys Asn Tyr Arg Ile Asp Thr Pro Cys Pro Tyr Leu Pro Asn  
 465 470 475 480

Ala Tyr Val Asn Thr Ala His Gly Thr Arg Gly Leu Ala Thr Ala Pro  
 485 490 495

Ile Cys Ala Ala Xaa Xaa Ala Ala Gln Ile Xaa Gly Leu Pro His Pro  
 500 505 510

Phe Xaa Gln Arg Leu Arg His Ala Leu His Pro Asn Arg Thr Ile Ile  
 515 520 525

Arg Ala Ile Val Arg Arg Lys Asp Leu Thr Pro  
 530 535

<210> 737  
 <211> 1620  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 737  
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 aaacacgcac acccgctcaa cctgattgtc tgcctccccg ataatcagat tcccaatttt 120  
 caaacgcac aagatgcttc ggacgcggaa tgccgtctga agcaccgttt ggatcaggca 180  
 acccagtgcc tccagttcga cagcatcaac ctgattgaac acatcctgcc cgatgtccgc 240  
 ttctggctgg ttcccccttc acgcacccgc cgctgcacg aacacttcca ccacatttcc 300  
 tggcagaccg aagccatccc gcaaaccgaa agtaagcccg acaaaccctg gtttgcactt 360  
 ccacaaacat ccgaacggca aaaaccggaa cacatcctcg ttatcggagc gggcatatcc 420  
 ggcgcggcaa ccgcccacgc cttagcatca tacggcattt ccgttaccgt attggaagcc 480  
 cgaaaagccg cccaagccgc cagcggcaac cgccaagggc tgctctacgc caaaatctcg 540  
 ccgcacgaca ccgaacaaac cgaactgtcg ctgcccggct acggctacac caaacgcctg 600  
 ctccggacata tcctgcccga atccgaaacc tggggcggca acggcatcat ccacctcaat 660  
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 ctctaccgca gcatcacgca ggcagaagcc gaaaaaatcg ccggcatccc tctgaacacg 780  
 ccctacgccc aaccattatg cggactgttt tggcagtacg gcgtatggct caatcctccc 840  
 acattcgtcc gcgcctcctt cagccatccg ctcatggac tacacgaaga cacaccgtta 900  
 accgacattt cccacgacgg ggaaaagtgg attgcaagca cgccaaacgg cacatttacc 960  
 gccacacaca tcatctactg caccgggtgcg aacagcccct acctaccgga aaccaacctc 1020  
 gccaccctgc cctcaggga aatacgcgga caaacccggc tcacaccgtc caccctgttt 1080  
 tccgaacaac tgcgttgccg cgtttcaggc gaaagctaca tcagcccgtc gtggcacgga 1140  
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 gaagaagcct caaacccgca agcattggca caccttaacc ccgccctttc cgaatcattg 1260  
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 gccaaactcg cgctggacaa aaactatcgc atcgatgccc cctgcccgtc cctgcccatt 1440  
 gcctacgcca acaccgccc cggcacacgc gggcttgcca ccgcccccat ctgcgcccgc 1500  
 gccgttgccg ccgaaatcct aggcctgccc catcccctct caaaacgcct gcgccacgcc 1560  
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<210> 738  
 <211> 539  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 738



Met	Asp	Asn	Leu	Ala	Trp	Asn	Gly	Ile	Pro	Asp	Ile	Arg	Thr	Leu	Asp	1	5	10	15
Gln	Thr	Ile	Arg	Lys	His	Ala	His	Pro	Leu	Asn	Leu	Ile	Val	Cys	Leu	20	25	30	
Pro	Asp	Asn	Gln	Ile	Pro	Asn	Phe	Gln	Thr	Ala	Gln	Asp	Ala	Ser	Asp	35	40	45	
Ala	Glu	Cys	Arg	Leu	Lys	His	Arg	Leu	Asp	Gln	Ala	Thr	Gln	Cys	Leu	50	55	60	
Gln	Phe	Asp	Ser	Ile	Asn	Leu	Ile	Glu	His	Ile	Leu	Pro	Asp	Val	Arg	65	70	75	80
Phe	Trp	Leu	Val	Pro	Pro	Ser	Arg	Thr	Arg	Arg	Leu	His	Glu	His	Phe	85	90	95	
His	His	Ile	Ser	Trp	Gln	Thr	Glu	Ala	Ile	Pro	Gln	Thr	Glu	Ser	Lys	100	105	110	
Pro	Asp	Lys	Pro	Trp	Phe	Ala	Leu	Pro	Gln	Thr	Ser	Glu	Arg	Gln	Lys	115	120	125	
Pro	Glu	His	Ile	Leu	Val	Ile	Gly	Ala	Gly	Ile	Ser	Gly	Ala	Ala	Thr	130	135	140	
Ala	His	Ala	Leu	Ala	Ser	Tyr	Gly	Ile	Ser	Val	Thr	Val	Leu	Glu	Ala	145	150	155	160
Arg	Lys	Ala	Ala	Gln	Ala	Ala	Ser	Gly	Asn	Arg	Gln	Gly	Leu	Leu	Tyr	165	170	175	
Ala	Lys	Ile	Ser	Pro	His	Asp	Thr	Glu	Gln	Thr	Glu	Leu	Leu	Leu	Ala	180	185	190	
Gly	Tyr	Gly	Tyr	Thr	Lys	Arg	Leu	Leu	Gly	His	Ile	Leu	Pro	Glu	Ser	195	200	205	
Glu	Thr	Trp	Gly	Gly	Asn	Gly	Ile	Ile	His	Leu	Asn	Tyr	Ser	Arg	Thr	210	215	220	
Glu	Gln	Gln	Arg	Asn	His	Glu	Leu	Gly	Leu	Gln	Lys	His	His	Asn	His	225	230	235	240
Leu	Tyr	Arg	Ser	Ile	Thr	Gln	Ala	Glu	Ala	Glu	Lys	Ile	Ala	Gly	Ile	245	250	255	
Pro	Leu	Asn	Thr	Pro	Tyr	Ala	Glu	Pro	Leu	Cys	Gly	Leu	Phe	Trp	Gln	260	265	270	
Tyr	Gly	Val	Trp	Leu	Asn	Pro	Pro	Thr	Phe	Val	Arg	Ala	Leu	Leu	Ser	275	280	285	
His	Pro	Leu	Ile	Gly	Leu	His	Glu	Asp	Thr	Pro	Leu	Thr	Asp	Ile	Ser	290	295	300	

His Asp Gly Glu Lys Trp Ile Ala Ser Thr Pro Asn Gly Thr Phe Thr  
 305 310 315 320  
 Ala Thr His Ile Ile Tyr Cys Thr Gly Ala Asn Ser Pro Tyr Leu Pro  
 325 330 335  
 Glu Thr Asn Leu Ala Thr Leu Pro Leu Arg Gln Ile Arg Gly Gln Thr  
 340 345 350  
 Gly Leu Thr Pro Ser Thr Pro Phe Ser Glu Gln Leu Arg Cys Ala Val  
 355 360 365  
 Ser Gly Glu Ser Tyr Ile Ser Pro Ser Trp His Gly Leu His Cys Tyr  
 370 375 380  
 Gly Ala Ser Phe Ile Pro Asn Ser Ser His Thr Gly Trp Asn Glu Ala  
 385 390 395 400  
 Glu Glu Ala Ser Asn Arg Gln Ala Leu Ala His Leu Asn Pro Ala Leu  
 405 410 415  
 Ser Glu Ser Leu Phe Ala Ala Asn Pro Asn Pro Gln Lys His Gln Gly  
 420 425 430  
 His Ala Ala Ile Arg Cys Asp Ser Pro Asp His Leu Pro Leu Val Gly  
 435 440 445  
 Ala Leu Gly Asp Ile Ala Ala Met Gln Gln Thr Tyr Ala Lys Leu Ala  
 450 455 460  
 Leu Asp Lys Asn Tyr Arg Ile Asp Ala Pro Cys Pro Tyr Leu Pro Asn  
 465 470 475 480  
 Ala Tyr Ala Asn Thr Ala His Gly Thr Arg Gly Leu Ala Thr Ala Pro  
 485 490 495  
 Ile Cys Ala Ala Ala Val Ala Ala Glu Ile Leu Gly Leu Pro His Pro  
 500 505 510  
 Leu Ser Lys Arg Leu Arg His Ala Leu His Pro Asn Arg Ala Ile Ile  
 515 520 525  
 Arg Ala Ile Val Arg Arg Lys Asp Leu Thr Pro  
 530 535

<210> 739  
 <211> 606  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 739  
 atgatacaaa agatatgtaa gctatttgtt ttaattgtaa tttttgcaac ttctcccgtc 60  
 tttgcccttc aaagcgacag cagacggccc atccaaatcg aagccgacca aggttcgctc 120  
 gatcaagcca accaaaggac cacatttagc ggcaatgtca tcatcagaca gggtagctc 180  
 aacatttccg cctcgtgtgt caacgtcaca cgcggcaggc aaaggcggcg aatccgtgag 240  
 ggcggaaggt tcgcccgtcc gcttcagcca aacgttgagc gggggcaaag ggacggtgcg 300

cggtcaggca aacaacgtta cctattcctc cgcaggaagc actgtcggtc tgaccggcaa 360  
 tgccaaagtg cagcgcggcg gcgacgttgc cgaaggtgcg gtcattacct acaacaccaa 420  
 aaccgaagtc tataccatca acggcagcac gaaatcgggt gcgaaatccg cttccaaaac 480  
 cggcaggggtc agcgtcgtca tccagccttc aagcacacaa aaaaccgaat aaccccgatg 540  
 ccgtctgaaa cggaaacgca gttcagacgg catttgccga ccgaaatgcc gagaagagat 600  
 tattga 606

<210> 740

<211> 201

<212> PRT

<213> Neisseria gonorrhoeae

<400> 740

Met Ile Gln Lys Ile Cys Lys Leu Phe Val Leu Ile Val Ile Phe Ala  
 1 5 10 15

Thr Ser Pro Ala Phe Ala Leu Gln Ser Asp Ser Arg Arg Pro Ile Gln  
 20 25 30

Ile Glu Ala Asp Gln Gly Ser Leu Asp Gln Ala Asn Gln Arg Thr Thr  
 35 40 45

Phe Ser Gly Asn Val Ile Ile Arg Gln Gly Thr Leu Asn Ile Ser Ala  
 50 55 60

Ser Cys Val Asn Val Thr Arg Gly Arg Gln Arg Arg Arg Ile Arg Glu  
 65 70 75 80

Gly Gly Arg Phe Ala Arg Pro Leu Gln Pro Asn Val Gly Arg Gly Gln  
 85 90 95

Arg Asp Gly Ala Arg Ser Gly Lys Gln Arg Tyr Leu Phe Leu Arg Arg  
 100 105 110

Lys His Cys Arg Ser Asp Arg Gln Cys Gln Ser Ala Ala Arg Arg Arg  
 115 120 125

Arg Cys Arg Arg Cys Gly His Tyr Leu Gln His Gln Asn Arg Ser Leu  
 130 135 140

Tyr His Gln Arg Gln His Glu Ile Gly Cys Glu Ile Arg Phe Gln Asn  
 145 150 155 160

Arg Gln Gly Gln Arg Arg His Pro Ala Phe Lys His Thr Lys Asn Arg  
 165 170 175

Ile Thr Pro Met Pro Ser Glu Thr Glu Thr Gln Phe Arg Arg His Leu  
 180 185 190

Pro Thr Glu Met Pro Arg Arg Asp Tyr  
 195 200

<210> 741

<211> 455

<212> DNA  
<213> Neisseria meningitidis

<400> 741  
atgatacaaa agatatgtaa gctatttggt ttaatagcat ttttttcggc gtcccccgct 60  
tttgcccttc aaagcgacag caggcagcct attcagattg aggccgacca aggttcgctc 120  
gatcaagcca accaaagcac cacattcagc ggaaacgtcg tcatcagaca gggtagcgtc 180  
aatatttccg ccgcccgcgt caatgttaça cgcggcggca aaggcggcga atccgtgagg 240  
gcggaagggt cgccagtcg cttcagccag acattggacg gcggcaaagg cacggtgcgc 300  
ggacaggcaa acaacgttgc ttattcatct gcaggcagca ccgtagtctt aaccggtaat 360  
gccaaagtac agcgcggcgg cgatgtcgcc gaagggtcgg tgattacata caacaccaa 420  
accgaagtct ataccatcag cggcagcaca aaatt 455

<210> 742  
<211> 151  
<212> PRT  
<213> Neisseria meningitidis

<400> 742  
Met Ile Gln Lys Ile Cys Lys Leu Phe Val Leu Ile Ala Phe Phe Ser  
1 5 10 15  
Ala Ser Pro Ala Phe Ala Leu Gln Ser Asp Ser Arg Gln Pro Ile Gln  
20 25 30  
Ile Glu Ala Asp Gln Gly Ser Leu Asp Gln Ala Asn Gln Ser Thr Thr  
35 40 45  
Phe Ser Gly Asn Val Val Ile Arg Gln Gly Thr Leu Asn Ile Ser Ala  
50 55 60  
Ala Arg Val Asn Val Thr Arg Gly Arg Gln Arg Arg Arg Ile Arg Glu  
65 70 75 80  
Gly Gly Arg Phe Ala Ser Pro Leu Gln Pro Asp Ile Gly Arg Arg Gln  
85 90 95  
Arg His Gly Ala Arg Thr Gly Lys Gln Arg Cys Leu Phe Ile Cys Arg  
100 105 110  
Gln His Arg Ser Leu Asn Arg Cys Gln Ser Thr Ala Arg Arg Arg Cys  
115 120 125  
Arg Arg Arg Cys Gly Asp Tyr Ile Gln His Gln Asn Arg Ser Leu Tyr  
130 135 140  
His Gln Arg Gln His Lys Ile  
145 150

<210> 743  
<211> 605  
<212> DNA  
<213> Neisseria meningitidis

<400> 743

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atgatacaaa agatatgtaa gctatttggt ttaatagcat ttttttcggc gtcccccgct 60
tttgcccttc aaagcgacag caggcagcct attcagattg aggccgacca aggttcgctc 120
gatcaagcca accaaagcac cacattcagc ggaaacgtcg tcatcagaca gggtagcctc 180
aatattttccg ccgcccgcgt caatgttaca cgcggcggca aaggcggcga atccgtgagg 240
gcggaaggtt cgccagtcg cttcagccag acattggacg gcggcaaagg cacggtgcgc 300
ggacaggcaa acaacgttgc ttattcatct gcaggcagca ccgtagtctt aaccggtaat 360
gccaaagtac agcgcggcgg cgatgtcgcc gaagggtgcg tgattacata caacacaaaa 420
accgaagtct ataccatcag cggcagcaca aaatccggcg caaaatccgc ttccaaatcc 480
ggcaggggtca gcgtcgttat ccagccttcg agtacgcaaa aatccgaata atcccaatgc 540
cgtctgaaac ataaacctgg ttcggacggc atttgccgac cgaaatattg aagagatatt 600
tatga 605

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<210> 744  
 <211> 199  
 <212> PRT  
 <213> Neisseria meningitidis

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<400> 744
Met Ile Gln Lys Ile Cys Lys Leu Phe Val Leu Ile Ala Phe Phe Ser
  1             5             10             15

Ala Ser Pro Ala Phe Ala Leu Gln Ser Asp Ser Arg Gln Pro Ile Gln
      20             25             30

Ile Glu Ala Asp Gln Gly Ser Leu Asp Gln Ala Asn Gln Ser Thr Thr
      35             40             45

Phe Ser Gly Asn Val Val Ile Arg Gln Gly Thr Leu Asn Ile Ser Ala
      50             55             60

Ala Arg Val Asn Val Thr Arg Gly Xaa Gln Arg Arg Arg Ile Arg Glu
      65             70             75             80

Gly Gly Arg Phe Ala Ser Pro Leu Gln Pro Asp Ile Gly Arg Arg Gln
      85             90             95

Arg His Gly Ala Arg Thr Gly Lys Gln Arg Cys Leu Phe Ile Cys Arg
      100            105            110

Gln His Arg Ser Leu Asn Arg Cys Gln Ser Thr Ala Arg Arg Arg Cys
      115            120            125

Arg Arg Arg Cys Gly Asp Tyr Ile Gln His Gln Asn Arg Ser Leu Tyr
      130            135            140

His Gln Arg Gln His Lys Ile Arg Arg Lys Ile Arg Phe Gln Ile Arg
      145            150            155            160

Gln Gly Gln Arg Arg Tyr Pro Ala Phe Glu Tyr Ala Lys Ile Arg Ile
      165            170            175

Ile Pro Met Pro Ser Glu Thr Thr Trp Phe Gly Arg His Leu Pro Thr
      180            185            190

Glu Ile Leu Lys Arg Tyr Leu
      195

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<210> 745  
 <211> 531  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 745  
 atgatacaaa agatatgtaa gctatttgggt ttaattgtaa tttttgcaac ttctcccgct 60  
 ttgccccttc aaagcgacag cagacggccc atccaaatcg aagccgacca aggttcgctc 120  
 gatcaagcca accaaagtac cacatttagc ggcaatgtca tcatcagaca gggtagcgtc 180  
 aacatttccg cctcgcgcggt caacgtcaca cgcgggcgga aaggcggcga atccgtgagg 240  
 gcggaaggtt cgcccgtccg cttcagccaa acgttggacg ggggcaaagg gacggtgcgc 300  
 ggtagcagca acaacgttac ctattcctcc gcaggaagca ccgtcgttct gaccggcaat 360  
 gccaaagtgc agcgcgggcg cgacgttgcc gaaggtgcgg tcattaccta caacacaaa 420  
 accgaagtct ataccatcaa cggcagcacg aaatcggtg cgaaatccgc ttccaaaacc 480  
 ggcaggggtca gcgtcgtcat ccagccttca agcacacaaa aaaccgaata a 531

<210> 746  
 <211> 176  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 746  
 Met Ile Gln Lys Ile Cys Lys Leu Phe Val Leu Ile Val Ile Phe Ala  
 1 5 10 15  
 Thr Ser Pro Ala Phe Ala Leu Gln Ser Asp Ser Arg Arg Pro Ile Gln  
 20 25 30  
 Ile Glu Ala Asp Gln Gly Ser Leu Asp Gln Ala Asn Gln Ser Thr Thr  
 35 40 45  
 Phe Ser Gly Asn Val Ile Ile Arg Gln Gly Thr Leu Asn Ile Ser Ala  
 50 55 60  
 Ser Arg Val Asn Val Thr Arg Gly Gly Lys Gly Gly Glu Ser Val Arg  
 65 70 75 80  
 Ala Glu Gly Ser Pro Val Arg Phe Ser Gln Thr Leu Asp Gly Gly Lys  
 85 90 95  
 Gly Thr Val Arg Gly Gln Ala Asn Asn Val Thr Tyr Ser Ser Ala Gly  
 100 105 110  
 Ser Thr Val Val Leu Thr Gly Asn Ala Lys Val Gln Arg Gly Gly Asp  
 115 120 125  
 Val Ala Glu Gly Ala Val Ile Thr Tyr Asn Thr Lys Thr Glu Val Tyr  
 130 135 140  
 Thr Ile Asn Gly Ser Thr Lys Ser Gly Ala Lys Ser Ala Ser Lys Thr  
 145 150 155 160  
 Gly Arg Val Ser Val Val Ile Gln Pro Ser Ser Thr Gln Lys Thr Glu  
 165 170 175

<210> 747  
 <211> 531  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 747  
 atgatacaaa agatatgtaa gctatttggt ttaatagcat ttttttcggc gtcccccgct 60  
 ttgccccttc aaagcgacag caggcagcct attcagattg aggccgacca aggttcgctc 120  
 gatcaagcca accaaagcac cacattcagc ggaaacgtcg tcatcagaca gggtagcgtc 180  
 aatatttccg ccgcccgcgt caatgttaca cgcggcggca aaggcggcga atccgtgagg 240  
 gcggaagggt cgccagtcag cttcagccag acattggacg gcggcaaagg cacggtgcgc 300  
 ggacaggcaa acaacgttgc ttattcatct gcaggcagca ccgtagtctt aaccggtaat 360  
 gccaaagtac agcgcggcgg cgatgtcgcc gaagggtgcg tgattacata caacaccaaa 420  
 accgaagtct ataccatcag cggcagcaca aaatccggcg caaaatccgc ttccaaatcc 480  
 ggcagggtca gcgtcgttat ccagccttcg agtacgcaaa aatccgaata a 531

<210> 748  
 <211> 176  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 748  
 Met Ile Gln Lys Ile Cys Lys Leu Phe Val Leu Ile Ala Phe Phe Ser  
 1 5 10 15  
 Ala Ser Pro Ala Phe Ala Leu Gln Ser Asp Ser Arg Gln Pro Ile Gln  
 20 25 30  
 Ile Glu Ala Asp Gln Gly Ser Leu Asp Gln Ala Asn Gln Ser Thr Thr  
 35 40 45  
 Phe Ser Gly Asn Val Val Ile Arg Gln Gly Thr Leu Asn Ile Ser Ala  
 50 55 60  
 Ala Arg Val Asn Val Thr Arg Gly Gly Lys Gly Glu Ser Val Arg  
 65 70 75 80  
 Ala Glu Gly Ser Pro Val Arg Phe Ser Gln Thr Leu Asp Gly Gly Lys  
 85 90 95  
 Gly Thr Val Arg Gly Gln Ala Asn Asn Val Ala Tyr Ser Ser Ala Gly  
 100 105 110  
 Ser Thr Val Val Leu Thr Gly Asn Ala Lys Val Gln Arg Gly Gly Asp  
 115 120 125  
 Val Ala Glu Gly Ala Val Ile Thr Tyr Asn Thr Lys Thr Glu Val Tyr  
 130 135 140  
 Thr Ile Ser Gly Ser Thr Lys Ser Gly Ala Lys Ser Ala Ser Lys Ser  
 145 150 155 160

Gly Arg Val Ser Val Val Ile Gln Pro Ser Ser Thr Gln Lys Ser Glu  
165 170 175

<210> 749  
<211> 531  
<212> DNA  
<213> Neisseria meningitidis

<400> 749  
atgatacaaaa agatatgtaa gctattttgtt ttaatagcat ttttttcggc gtcccccgc 60  
tttgcccttc aaagcgacag caggcagcct attcagattg aggccgacca aggttcgctc 120  
  
gatcaagcca accaaaagcac cacattcagc ggaaacgtcg tcatcagaca gggtagcgtc 180  
aatatttccg ccgcccgcgt caatgttaca cgcggcggca aaggcggcga atccgtgagg 240  
gcggaaggtt cgccagtccg cttcagccag acattggacg gcggcaaagg cacggtgcgc 300  
ggacaggcaa acaacgttgc ttattcatct gcaggcagca ccgtagtctt aaccggtaat 360  
gccaaagtac agcgcggcgg cgatgtcgcc gaaggtgcgg tgattacata caacacccaaa 420  
accgaagtct ataccatcag cggcagcaca aaatccggcg caaaatccgc ttccaaatcc 480  
ggcaggggtca gcgtcggttat ccagccttcg agtacgcaaa aatccgaata a 531

<210> 750  
<211> 176  
<212> PRT  
<213> Neisseria meningitidis

<400> 750  
Met Ile Gln Lys Ile Cys Lys Leu Phe Val Leu Ile Ala Phe Phe Ser  
1 5 10 15  
Ala Ser Pro Ala Phe Ala Leu Gln Ser Asp Ser Arg Gln Pro Ile Gln  
20 25 30  
Ile Glu Ala Asp Gln Gly Ser Leu Asp Gln Ala Asn Gln Ser Thr Thr  
35 40 45  
Phe Ser Gly Asn Val Val Ile Arg Gln Gly Thr Leu Asn Ile Ser Ala  
50 55 60  
Ala Arg Val Asn Val Thr Arg Gly Gly Lys Gly Gly Glu Ser Val Arg  
65 70 75 80  
Ala Glu Gly Ser Pro Val Arg Phe Ser Gln Thr Leu Asp Gly Gly Lys  
85 90 95  
Gly Thr Val Arg Gly Gln Ala Asn Asn Val Ala Tyr Ser Ser Ala Gly  
100 105 110  
Ser Thr Val Val Leu Thr Gly Asn Ala Lys Val Gln Arg Gly Gly Asp  
115 120 125  
Val Ala Glu Gly Ala Val Ile Thr Tyr Asn Thr Lys Thr Glu Val Tyr



130

135

140

Thr Ile Ser Gly Ser Thr Lys Ser Gly Ala Lys Ser Ala Ser Lys Ser  
 145 150 155 160

Gly Arg Val Ser Val Val Ile Gln Pro Ser Ser Thr Gln Lys Ser Glu  
 165 170 175

&lt;210&gt; 751

&lt;211&gt; 582

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 751

atgaaagtaa gatggcggta cggaattgcg ttcccattga tattggcgggt tgccttgggc 60  
 agcctgtcgg catggttggg ccgtatcagc gaagtcgaaa tcgaggaagt caggctcaat 120  
 cccgacgaac ctcaatacac aatggacggc ttggacggaa ggcggttga cgaacaggga 180  
 tacttgaaag aacatttgag cgcgaaagggt gcgaaacagt ttcccgaaaa cagcgacatc 240  
 cattttgatt cgccgcattc cgtgttcttc caagaaggca ggctgttgta cgaagtcggc 300  
 agcgatgaag ccgtttacca taccgaaaac aaacagggttc tttttaaaaa caacgttgtg 360  
 ctgaccaaaa ccgccgacgg caggcgggcag gcgggtaaag tcgaaaccga aaaactgcac 420  
 gtcgataccg aatctcaata tgcccaaacc gatacgctg tcagtttcca atatggcgcg 480  
 tcgcacgggtc aggcggggcg tatgacctac aaccacaaaa caggcatgtt gaacttctca 540  
 tctaaagtga aagccgcgat ttatgataca aaagatatgt aa 582

&lt;210&gt; 752

&lt;211&gt; 193

&lt;212&gt; PRT

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 752

Met Lys Val Arg Trp Arg Tyr Gly Ile Ala Phe Pro Leu Ile Leu Ala  
 1 5 10 15

Val Ala Leu Gly Ser Leu Ser Ala Trp Leu Gly Arg Ile Ser Glu Val  
 20 25 30

Glu Ile Glu Glu Val Arg Leu Asn Pro Asp Glu Pro Gln Tyr Thr Met  
 35 40 45

Asp Gly Leu Asp Gly Arg Arg Phe Asp Glu Gln Gly Tyr Leu Lys Glu  
 50 55 60

His Leu Ser Ala Lys Gly Ala Lys Gln Phe Pro Glu Asn Ser Asp Ile  
 65 70 75 80

His Phe Asp Ser Pro His Leu Val Phe Phe Gln Glu Gly Arg Leu Leu  
 85 90 95

Tyr Glu Val Gly Ser Asp Glu Ala Val Tyr His Thr Glu Asn Lys Gln  
 100 105 110

Val Leu Phe Lys Asn Asn Val Val Leu Thr Lys Thr Ala Asp Gly Arg  
 115 120 125

Arg Gln Ala Gly Lys Val Glu Thr Glu Lys Leu His Val Asp Thr Glu  
 130 135 140

Ser Gln Tyr Ala Gln Thr Asp Thr Pro Val Ser Phe Gln Tyr Gly Ala  
 145 150 155 160

Ser His Gly Gln Ala Gly Gly Met Thr Tyr Asn His Lys Thr Gly Met  
 165 170 175

Leu Asn Phe Ser Ser Lys Val Lys Ala Ala Ile Tyr Asp Thr Lys Asp  
 180 185 190

Met

<210> 753  
 <211> 521  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 753  
 agcctgtcgg catggttggg tcgtatcagc gaagtcgaga ttgaagaagt caggctcaat 60  
 cccgacgaac cgcaatacac aatggacagc ttggacggca ggcggttga cgaacaggga 120  
 tacttgaaag aacatttgag cgcgaagggc gcgaaacagt ttccggaaag cagcgacatc 180  
 cattttgatt cgccgcatct cgtgttcttc caagaaggca ggttggtgta cgaagtcggc 240  
 agcgacgaag ccgtttacca taccgaaaac aaacagggttc tttttaaaaa caacggtgtg 300  
 ctgacaaaaa ccgccgacgg caaacggcag gcgggtaaaag ttgaagccga aaagctgcac 360  
 gtcgataccg aatctcaata tgcccaaacc gatacgcttg cagtttccaa tatggtgcat 420  
 cgcacggtca ggcggggcgc atgacttacg accacawwac aggcatgttg aacttctcat 480  
 ctaaagtgaag agccacgatt tatgatacaa aagatatgta a 521

<210> 754  
 <211> 173  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 754  
 Ser Leu Ser Ala Trp Leu Gly Arg Ile Ser Glu Val Glu Ile Glu Glu  
 1 5 10 15  
 Val Arg Leu Asn Pro Asp Glu Pro Gln Tyr Thr Met Asp Ser Leu Asp  
 20 25 30  
 Gly Arg Arg Phe Asp Glu Gln Gly Tyr Leu Lys Glu His Leu Ser Ala  
 35 40 45  
 Lys Gly Ala Lys Gln Phe Pro Glu Ser Ser Asp Ile His Phe Asp Ser  
 50 55 60  
 Pro His Leu Val Phe Phe Gln Glu Gly Arg Leu Leu Tyr Glu Val Gly  
 65 70 75 80

Ser Asp Glu Ala Val Tyr His Thr Glu Asn Lys Gln Val Leu Phe Lys  
                             85                            90                            95  
 Asn Asn Val Val Leu Thr Lys Thr Ala Asp Gly Lys Arg Gln Ala Gly  
                             100                            105                            110  
 Lys Val Glu Ala Glu Lys Leu His Val Asp Thr Glu Ser Gln Tyr Ala  
                             115                            120                            125  
 Gln Thr Asp Thr Pro Val Ser Phe Gln Tyr Gly Ala Ser His Gly Gln  
                             130                            135                            140  
 Ala Gly Gly Met Thr Tyr Asp His Xaa Thr Gly Met Leu Asn Phe Ser  
                             145                            150                            155                            160  
 Ser Lys Val Lys Ala Thr Ile Tyr Asp Thr Lys Asp Met  
                             165                            170

<210> 755  
 <211> 582  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 755  
 atgaaagtaa gatggcggta cggaattgcg ttcccatga tattggcgggt tgccttgggc 60  
 agcctgtcgg catggttggg acgcatcagc gaagtcgaga ttgaagaagt caggctcaat 120  
 cccgacgaac cgcaatacac aatggacgga ttgatggca ggcggtttga cgaacaggga 180  
 tacttgaaag aacatttgag ttcgaagggc gcgaaacagt ttcccgaag cagcgacatt 240  
 catttcgact caccgcatct cgtgttcttc caagaaggca ggttggtgta cgaagtcggc 300  
 agcgatgaag ccgtttacca taccgaaaac aaacagggtc tttttaaaaa caacgttgtg 360  
 ctgaccaaaa ccgccgacgg caaacggcag gcgggtaaaag ttgaagccga aaagctgcac 420  
 gtcgataccg aatctcaata tgcccaaacc gatacgctg tcagtttcca atatggtgca 480  
 tcgcacggtc aggcgggcgg catgacttac gaccacaaaa caggcatggt gaacttctca 540  
 tctaaagtga aagccacgat ttatgatata aaagatatgt aa 582

<210> 756  
 <211> 193  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 756  
 Met Lys Val Arg Trp Arg Tyr Gly Ile Ala Phe Pro Leu Ile Leu Ala  
   1                            5                            10                            15  
 Val Ala Leu Gly Ser Leu Ser Ala Trp Leu Gly Arg Ile Ser Glu Val  
                             20                            25                            30  
 Glu Ile Glu Glu Val Arg Leu Asn Pro Asp Glu Pro Gln Tyr Thr Met  
                             35                            40                            45  
 Asp Gly Leu Asp Gly Arg Arg Phe Asp Glu Gln Gly Tyr Leu Lys Glu  
                             50                            55                            60  
 His Leu Ser Ser Lys Gly Ala Lys Gln Phe Pro Glu Ser Ser Asp Ile

65		70		75		80
His Phe Asp Ser Pro His Leu Val Phe Phe Gln Glu Gly Arg Leu Leu						
	85		90		95	
Tyr Glu Val Gly Ser Asp Glu Ala Val Tyr His Thr Glu Asn Lys Gln						
	100		105		110	
Val Leu Phe Lys Asn Asn Val Val Leu Thr Lys Thr Ala Asp Gly Lys						
	115		120		125	
Arg Gln Ala Gly Lys Val Glu Ala Glu Lys Leu His Val Asp Thr Glu						
	130		135		140	
Ser Gln Tyr Ala Gln Thr Asp Thr Pro Val Ser Phe Gln Tyr Gly Ala						
145		150		155		160
Ser His Gly Gln Ala Gly Gly Met Thr Tyr Asp His Lys Thr Gly Met						
	165		170		175	
Leu Asn Phe Ser Ser Lys Val Lys Ala Thr Ile Tyr Asp Thr Lys Asp						
	180		185		190	

Met

<210> 757  
 <211> 468  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 757  
 atgatatcga tttcgagctc ggtacccagc gacgaaatca ccgccatcat ccccgcactc 60  
 aaacgcaaag acattaccct cgtctgcac accgcccgcc ccgattcaac catggcgogc 120  
 catgccgata tccacatcac cgcacgggtt tcgcaagaag cctgcccgtt ggggcttgcc 180  
 ccgaccacca gcaccaccgc cggttatggct ttgggcgacg cgttggcggt cgctctgctg 240  
 cgcgcccgcg cgttcacgcc cgacgacttc gccttgatcc accctgccgg cagcctcggc 300  
 aaacgcctgc ttttgcgctg tgccgacatt atgcacaaag gcggcggcct gcccgccgctc 360  
 cgactcggca cgccttgaa aggagccatc gtcagcatga gcgagaaagg tttgggcatg 420  
 tgggcgggaa cggacgggca aaggctgtct gaaaggcctt tttactga 468

<210> 758  
 <211> 155  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 758  
 Met Ile Ser Ile Ser Ser Ser Val Pro Ser Asp Glu Ile Thr Ala Ile  
 1 5 10 15  
 Ile Pro Ala Leu Lys Arg Lys Asp Ile Thr Leu Val Cys Ile Thr Ala  
 20 25 30  
 Arg Pro Asp Ser Thr Met Ala Arg His Ala Asp Ile His Ile Thr Ala

35	40	45
Ser Val Ser Gln Glu Ala Cys Pro Leu Gly Leu Ala Pro Thr Thr Ser		
50	55	60
Thr Thr Ala Val Met Ala Leu Gly Asp Ala Leu Ala Val Val Leu Leu		
65	70	75
Arg Ala Arg Ala Phe Thr Pro Asp Asp Phe Ala Leu Ile His Pro Ala		
	85	90
Gly Ser Leu Gly Lys Arg Leu Leu Leu Arg Val Ala Asp Ile Met His		
	100	105
Lys Gly Gly Gly Leu Pro Ala Val Arg Leu Gly Thr Pro Leu Lys Gly		
	115	120
Ala Ile Val Ser Met Ser Glu Lys Gly Leu Gly Met Trp Ala Gly Thr		
	130	135
Asp Gly Gln Arg Leu Ser Glu Arg Pro Phe Tyr		
145	150	155

<210> 759  
 <211> 981  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 759  
 atggcaatgg cagaaaaacgg aaaatatctc gactgggcac gcgaagtgtt gcacgccgaa 60  
 gcggaaggct tgcgcgaaat tgcagcggaa ttgsacaaaa acttcgtcct tgcggcagac 120  
 gcgttggtgc actgcaaggg cagggtcgtt atcacgggca tgggtcaagtc gggacatatc 180  
  
 gggcgcaaaa tggcggcaac tatggcctcg accggcacgc ctgcgttttt cgtccaccct 240  
 gcggaagcgg cacacggcga tttgggtatg attgtggaca rcgacgtggc cgtcgcgatt 300  
 tccaattccg gcgaaagcga cgaaatcgcc gccatcatcc ccgcactcaa acgcaaagac 360  
 atcacgcttg tctgcatcac cgcccgcgcc gattcaacca tggcgcgcga tgccgacatc 420  
 cacatcacgg cgtcggtttc caaagaagcc tgcccgcctg ggcttgcccc gaccaccagc 480  
 accaccgccg tcatggcttt gggcgatgcg ttggcggctg tctgtctgcg cgcacgcgcg 540  
 ttcacgcccg acgatttcgc cttgagccat cctgccggca gcctcggcaa acgcctactt 600  
 ttgcgcgttg ccgacattat gcacaaaagg ggcggcctgc ctgccgtccg actcggcacg 660  
 cccttgaaaag aagccatcgt cagcatgagt gaaaaagggc tgggcatgtt ggcggtaacg 720  
 gacgggcaag gccgtctgaa aggcgtattc accgacggcg atttgcgccg cctgtttcaa 780  
 gaatgcgaca attttaccgg tctttcgata gacgaagtca tgcatacgca tcctaaaacc 840  
 atctccgccg aacgtctcgc caccgaagcc ctgaaagtca tgcaggcaaa ccatgtgaac 900  
 gggcttcttg ttaccgatgc agatggcgtg ctgatcggcg cgctgaatat gcacgacctg 960  
 ctggcggcac ggattgtata g 981

<210> 760  
 <211> 326  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 760  
 Met Ala Met Ala Glu Asn Gly Lys Tyr Leu Asp Trp Ala Arg Glu Val

1	5	10	15
Leu His Ala Glu Ala Glu Gly Leu Arg Glu Ile Ala Ala Glu Leu Xaa	20	25	30
Lys Asn Phe Val Leu Ala Ala Asp Ala Leu Leu His Cys Lys Gly Arg	35	40	45
Val Val Ile Thr Gly Met Val Lys Ser Gly His Ile Gly Arg Lys Met	50	55	60
Ala Ala Thr Met Ala Ser Thr Gly Thr Pro Ala Phe Phe Val His Pro	65	70	75
Ala Glu Ala Ala His Gly Asp Leu Gly Met Ile Val Asp Xaa Asp Val	85	90	95
Val Val Ala Ile Ser Asn Ser Gly Glu Ser Asp Glu Ile Ala Ala Ile	100	105	110
Ile Pro Ala Leu Lys Arg Lys Asp Ile Thr Leu Val Cys Ile Thr Ala	115	120	125
Arg Pro Asp Ser Thr Met Ala Arg His Ala Asp Ile His Ile Thr Ala	130	135	140
Ser Val Ser Lys Glu Ala Cys Pro Leu Gly Leu Ala Pro Thr Thr Ser	145	150	155
Thr Thr Ala Val Met Ala Leu Gly Asp Ala Leu Ala Val Val Leu Leu	165	170	175
Arg Ala Arg Ala Phe Thr Pro Asp Asp Phe Ala Leu Ser His Pro Ala	180	185	190
Gly Ser Leu Gly Lys Arg Leu Leu Leu Arg Val Ala Asp Ile Met His	195	200	205
Lys Gly Gly Gly Leu Pro Ala Val Arg Leu Gly Thr Pro Leu Lys Glu	210	215	220
Ala Ile Val Ser Met Ser Glu Lys Gly Leu Gly Met Leu Ala Val Thr	225	230	235
Asp Gly Gln Gly Arg Leu Lys Gly Val Phe Thr Asp Gly Asp Leu Arg	245	250	255
Arg Leu Phe Gln Glu Cys Asp Asn Phe Thr Gly Leu Ser Ile Asp Glu	260	265	270
Val Met His Thr His Pro Lys Thr Ile Ser Ala Glu Arg Leu Ala Thr	275	280	285
Glu Ala Leu Lys Val Met Gln Ala Asn His Val Asn Gly Leu Leu Val	290	295	300
Thr Asp Ala Asp Gly Val Leu Ile Gly Ala Leu Asn Met His Asp Leu			

305

310

315

320

Leu Ala Ala Arg Ile Val  
325

&lt;210&gt; 761

&lt;211&gt; 981

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 761

atggcgatgg caggaaacga aaaatatctt gattggggcac gcgaagtgtt gcacaccgaa 60  
gcggaaggct tgcgcgaaat tgcggcggat ttggacgaaa acttcgccct tgcggcggac 120  
gcgttggtgc actgcaaagg cagggtcgtt atcacgggca tgggcaagtc gggacatatc 180  
ggcgcaaaa tggcggaac catggcctcg accggcacgc ccgcgttttt cgtccaccct 240  
gcggaagcgg cacacggcga tttgggcatg attgtggaca acgacgtggt cgtcgcgatt 300  
tccaattccg gtgaaagcga cgaaatcgcc gccatcatcc ccgcgtcaa acgcaaagat 360  
atcacgcttg tctgcatcac cgcccgcgcc gattcaacca tggcgcgccca tgccgacatc 420  
cacatcacgg cgtcggtttc caaagaagcc tgcccgtggt ggcttgcccc gaccaccagc 480  
accaccgccg ttatggcttt gggcgatgcg ttggcggttg tctgtctgcg cggccgcgcg 540  
ttcacgcccg acgacttcgc cttgagccac cctgcgggca gcctcggcaa acgcctactt 600  
ttgcgcgttg ccgacattat gcacaaaggc ggcggcctgc ctgccgtccg actcggcacg 660

cccttgaaaag aagccatcgt cagcatgagt gaaaaagggc tgggcatggt ggcggtaacg 720  
gacgggcaag gccgtctgaa aggcgtattc accgacggcg atttgccgcg cctgtttcaa 780  
gaatgcgaca attttaccgg tctttcgata gacgaagtca tgcatacgca tcttaaaacc 840  
atctccgccg aacgtctcgc caccgaagcc ctgaaagtca tgcaggcaaa ccatgtgaac 900  
gggcttctgg ttaccgatgc agatggcgtg ctgatcggcg cgctgaatat gcacgacctt 960  
ttggcggcgc ggattgtata g 981

&lt;210&gt; 762

&lt;211&gt; 326

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 762

Met Ala Met Ala Gly Asn Glu Lys Tyr Leu Asp Trp Ala Arg Glu Val  
1 5 10 15

Leu His Thr Glu Ala Glu Gly Leu Arg Glu Ile Ala Ala Asp Leu Asp  
20 25 30

Glu Asn Phe Ala Leu Ala Ala Asp Ala Leu Leu His Cys Lys Gly Arg  
35 40 45

Val Val Ile Thr Gly Met Gly Lys Ser Gly His Ile Gly Arg Lys Met  
50 55 60

Ala Ala Thr Met Ala Ser Thr Gly Thr Pro Ala Phe Phe Val His Pro  
65 70 75 80

Ala Glu Ala Ala His Gly Asp Leu Gly Met Ile Val Asp Asn Asp Val  
85 90 95

Val Val Ala Ile Ser Asn Ser Gly Glu Ser Asp Glu Ile Ala Ala Ile

100	105	110
Ile Pro Ala Leu Lys Arg Lys Asp Ile Thr Leu Val Cys Ile Thr Ala		
115	120	125
Arg Pro Asp Ser Thr Met Ala Arg His Ala Asp Ile His Ile Thr Ala		
130	135	140
Ser Val Ser Lys Glu Ala Cys Pro Leu Gly Leu Ala Pro Thr Thr Ser		
145	150	155
Thr Thr Ala Val Met Ala Leu Gly Asp Ala Leu Ala Val Val Leu Leu		
	165	170
Arg Ala Arg Ala Phe Thr Pro Asp Asp Phe Ala Leu Ser His Pro Ala		
	180	185
Gly Ser Leu Gly Lys Arg Leu Leu Leu Arg Val Ala Asp Ile Met His		
	195	200
Lys Gly Gly Gly Leu Pro Ala Val Arg Leu Gly Thr Pro Leu Lys Glu		
	210	215
Ala Ile Val Ser Met Ser Glu Lys Gly Leu Gly Met Leu Ala Val Thr		
	225	230
Asp Gly Gln Gly Arg Leu Lys Gly Val Phe Thr Asp Gly Asp Leu Arg		
	245	250
Arg Leu Phe Gln Glu Cys Asp Asn Phe Thr Gly Leu Ser Ile Asp Glu		
	260	265
Val Met His Thr His Pro Lys Thr Ile Ser Ala Glu Arg Leu Ala Thr		
	275	280
Glu Ala Leu Lys Val Met Gln Ala Asn His Val Asn Gly Leu Leu Val		
	290	295
Thr Asp Ala Asp Gly Val Leu Ile Gly Ala Leu Asn Met His Asp Leu		
	305	310
Leu Ala Ala Arg Ile Val		
	325	

<210> 763

<211> 681

<212> DNA

<213> Neisseria gonorrhoeae

<400> 763

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atggcgggatg acggtttgtt gcggaactg tccgaaaaac ccagccaaag tgctctcttc 60
ctgccatttg acccattcgt tttcgagggt ttggactgcc ttttggatcat cgggcccggc 120
ttgaaacaat gtttcaagca aatcccggca acgcgccacc cattcgccga ccgtcgcagg 180
ttgccgcat atccgggcaa tatccgacag ggtttcgagg aaggcggcaa aacgtccgaa 240
catggcggtt tgattcacgt cggcatacca cgcgctgaca tcctgccaca tcgggttgcc 300
gccttcgggc agcatccagc ccaatatcat acggtctgcc gcctgcttcc aggtaaacag 360

```



```

ctgatccgtg cgcgcgcgca tttctccgtc caatcccca tggacgttca aatcggcaac 420
catatcgtgc aaaagcggca aatcgtcccc ggtcagtcgc aaacggcgca acacggggcg 480
ggtttccaaa agcgcgagca ctttgccgac ttcaaaacgg ctttcagca agtcggacac 540
gcaactccaac gcataaaaaa acgggttgcg gcggctgatt ttcacgtccg aaacggaata 600
cggcaatgcc tgcgcgcgg gttgcgcctg tccgaacacg gcttcataa aaggcgata 660
gggttcgata ttgggggta a 681

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<210> 764

<211> 226

<212> PRT

<213> Neisseria gonorrhoeae

<400> 764

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Met Ala Asp Asp Gly Leu Leu Arg Gln Leu Ser Glu Lys Pro Ser Gln
  1          5          10          15

Ser Ala Leu Phe Leu Pro Phe Asp Pro Phe Val Phe Glu Val Leu Asp
      20          25          30

Cys Leu Leu Val Ile Gly Pro Gly Leu Lys Gln Cys Phe Lys Gln Ile
      35          40          45

Pro Ala Thr Arg His Pro Phe Ala Asp Arg Arg Arg Leu Pro Pro Tyr
      50          55          60

Pro Gly Asn Ile Arg Gln Gly Phe Glu Glu Gly Gly Lys Thr Ser Glu
      65          70          75          80

His Gly Gly Leu Ile His Val Gly Ile Pro Arg Ala Asp Ile Leu Pro
      85          90          95

His Arg Val Ala Ala Phe Gly Gln His Pro Ala Gln Tyr His Thr Val
      100          105          110

Cys Arg Leu Leu Pro Gly Lys Gln Leu Ile Arg Ala Ala Ala His Phe
      115          120          125

Ser Val Gln Ser Pro Met Asp Val Gln Ile Gly Asn His Ile Val Gln
      130          135          140

Lys Arg Gln Ile Val Pro Gly Gln Ser Glu Thr Ala Gln His Gly Arg
      145          150          155          160

Gly Phe Gln Lys Arg Glu His Phe Ala Asp Phe Lys Thr Ala Phe Gln
      165          170          175

Gln Val Gly His Ala Leu Gln Arg Ile Lys Lys Arg Leu Pro Ala Ala
      180          185          190

Asp Phe His Val Arg Asn Gly Ile Arg Gln Cys Leu Arg Ala Gly Leu
      195          200          205

Arg Leu Ser Glu His Gly Phe His Lys Arg Arg Ile Gly Phe Asp Ile
      210          215          220

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Arg Gly  
225

<210> 765  
<211> 681  
<212> DNA  
<213> Neisseria meningitidis

<400> 765  
atggcggatg acggtgtgcg gcggcaactg tccggaaaat tgcgccaatt cggtttccgc 60  
ctrccatttg acccattcgt tttcaagggt ttggactgac ttttggtcat cggcttcagc 120  
ttggaacaat gtttcaagca aatcccggca acgcgccacc cattcgccga ccgttgcggg 180  
ctgccgccat atccgtacaa tatccgtcag ggtttcgagg aaggcggcaa aacgtccgaa 240  
catggcggtt tgattcacgt cggcatacca cgcgctgaca tcctgccaca tcggattgcc 300  
  
gcctttgggc agcatccagc ccaatatcat gcgttctacc gcctgcttcc aggtgaacag 360  
ctgatacgtg ccgcgcgcga tttctcgtc caaaccccag tggacgttca aatcggcaac 420  
catgtcgtgc aaaagcggta aatcgtcctc agtcagtccg aaacggcgca acacgggcgc 480  
ggtttctaaa agcacaagca ctttatcgac ttcaaatacg ctttccaaca agtcgaacag 540  
gcatgacaaa gcatgaaaca gcggttggcg gcggctgatt ttcacgtctg acacggaata 600  
cggcaatgcc tgcgcaccgg gctgcgcctg tccgaacacg gcttcgataa aaggcgtata 660  
ggattcgata ttcgggggta a 681

<210> 766  
<211> 226  
<212> PRT  
<213> Neisseria meningitidis

<400> 766  
Met Ala Asp Asp Gly Val Arg Arg Gln Leu Ser Gly Lys Leu Arg Gln  
1 5 10 15  
  
Phe Gly Phe Arg Leu Pro Phe Asp Pro Phe Val Phe Lys Val Leu Asp  
20 25 30  
  
Xaa Leu Leu Val Ile Gly Phe Ser Leu Glu Gln Cys Phe Lys Gln Ile  
35 40 45  
  
Pro Ala Thr Arg His Pro Phe Ala Asp Arg Cys Gly Leu Pro Pro Tyr  
50 55 60  
  
Pro Tyr Asn Ile Arg Gln Gly Phe Glu Glu Gly Gly Lys Thr Ser Glu  
65 70 75 80  
  
His Gly Gly Leu Ile His Val Gly Ile Pro Arg Ala Asp Ile Leu Pro  
85 90 95  
  
His Arg Ile Ala Ala Phe Gly Gln His Pro Ala Gln Tyr His Ala Phe  
100 105 110  
  
Tyr Arg Leu Leu Pro Gly Glu Gln Leu Ile Arg Ala Ala Ala His Phe  
115 120 125  
  
Ser Val Gln Thr Pro Val Asp Val Gln Ile Gly Asn His Val Val Gln  
130 135 140

Lys Arg Xaa Ile Val Leu Ser Gln Ser Glu Thr Ala Gln His Gly Arg  
 145 150 155 160  
 Gly Phe Xaa Lys His Lys His Phe Ile Asp Phe Lys Ser Ala Phe Gln  
 165 170 175  
 Gln Val Glu Gln Ala Xaa Gln Ser Met Lys Gln Arg Leu Ala Ala Ala  
 180 185 190  
 Asp Phe His Val Xaa His Gly Ile Arg Gln Cys Leu Arg Thr Gly Leu  
 195 200 205  
 Arg Leu Ser Glu His Gly Phe Asp Lys Arg Arg Ile Gly Phe Asp Ile  
 210 215 220  
 Arg Gly  
 225

<210> 767  
 <211> 681  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 767  
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 ctgccatttg acccattcgt ttctgaggct ttggactgcc ttttggtcat cgccttcgac 120  
 ttggaacaat gtttcaagca aatcccggca acgcgccacc cattcgtcaa ccgtcgcagg 180  
 ttgccgccat atccgtacaa tatccgtcag ggtttcgagg aaggcggcaa aacgtccgaa 240  
 cagggcgggtt tggttcacgt cggcatacca cgcgctgacc ccctgccaca tcggattgcc 300  
 gccttcgggc agcatccagc ccaatatcat gcgttctacc gcctgcttcc aggtgaacag 360  
 ctgatccgtg ccgcccgcga tttctccgtc caaaccocag cggacgttca aatcggcaac 420  
 catgtcgtgc aaaagcggca aatcgtcctc agtcagtcog aaatggcgca acacgggcgc 480  
 ggttttctaaa agcacaagca ctttatcgac ttcaaatacgg ctttccaaca agtcgaacag 540  
 gcatgacaaa gcatgaaaca gcggttgcg gcggctgatt ttcacatccg aaacggaata 600  
 cggcaatgcc tgcgcgccg gctgcgcctg tccgaacacg gcttcgataa aaggcgtata 660  
 ggattcgata ttcggggtta a 681

<210> 768  
 <211> 224  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 768  
 Val Ala Asp Asp Gly Val Gln Arg Gln Leu Ser Gly Lys Leu Arg Gln  
 1 5 10 15  
 Phe Gly Phe Arg Leu Pro Phe Asp Pro Phe Val Phe Glu Ala Leu Asp  
 20 25 30  
 Cys Leu Leu Val Ile Ala Phe Asp Leu Glu Gln Cys Phe Lys Gln Ile  
 35 40 45  
 Pro Ala Thr Arg His Pro Phe Val Asn Arg Arg Arg Leu Pro Pro Tyr  
 50 55 60

Pro Tyr Asn Ile Arg Gln Gly Phe Glu Glu Gly Gly Lys Thr Ser Glu  
 65 70 75 80  
 Gln Gly Gly Leu Val His Val Gly Ile Pro Arg Ala Asp Pro Leu Pro  
 85 90 95  
 His Arg Ile Ala Ala Phe Gly Gln His Pro Ala Gln Tyr His Ala Phe  
 100 105 110  
 Tyr Arg Leu Leu Pro Gly Glu Gln Leu Ile Arg Ala Ala His Phe  
 115 120 125  
 Ser Val Gln Thr Pro Ala Asp Val Gln Ile Gly Asn His Val Val Gln  
 130 135 140  
 Lys Arg Gln Ile Val Leu Ser Gln Ser Glu Met Ala Gln His Gly Arg  
 145 150 155 160  
 Gly Phe Lys His Lys His Phe Ile Asp Phe Lys Ser Ala Phe Gln Gln  
 165 170 175  
 Val Glu Gln Ala Gln Ser Met Lys Gln Arg Leu Ser Ala Ala Asp Phe  
 180 185 190  
 His Ile Arg Asn Gly Ile Arg Gln Cys Leu Arg Ala Gly Leu Arg Leu  
 195 200 205  
 Ser Glu His Gly Phe Asp Lys Arg Arg Ile Gly Phe Asp Ile Arg Gly  
 210 215 220

<210> 769  
 <211> 657  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 769  
 atggttgccg tggatcctta tacggcaaaa gtggtcaaca ccatgccgcg caatcagggt 60  
 tggatcacaca ctatggatga aatccacggc gatatgatgc tcggtgccgc aggcgattat 120  
 cttttggaaa cggcagcttc actgaccatt attatggttg tcagcggctt gtaccttttg 180  
 tgggcgaaac agcgcggcat taaagcgatg ctgctgccgc caaaaagcag ggcgcgttct 240  
 tgggtggcgg atctgcacgg cgcgtttgga acttgggtgt cgttgatttt actgttgttc 300  
 tgcctgtcgg gtattgcttg ggcaggtatt tggggcggca aattcgtgca ggcttggaaat 360  
 cagttccccg ccggcaaatg ggggtgtcgaa ccgaaccccg tttcaatcgt gccgaccac 420  
 ggcgaggtat tgaatgacgg caaggttaag gaagtgccgt ggattttgga gcttatgcct 480  
 atgcctgtct cagggacgac tgtgggtgaa aacggcatta accccaccga gcccaataac 540  
 attggaacc gtcgaccgtt tcgcgcggga aatcggtttc aaagggcggt atcagttgaa 600  
 tttgccc aaa ggcgaggacg gggatatggac tttgtcgcag gattctatga gttatga 657

<210> 770  
 <211> 218  
 <212> PRT

<213> Neisseria gonorrhoeae

<400> 770

Met Val Ala Val Asp Pro Tyr Thr Ala Lys Val Val Asn Thr Met Pro  
1 5 10 15  
Arg Asn Gln Gly Trp Tyr His Thr Met Asp Glu Ile His Gly Asp Met  
20 25 30  
Met Leu Gly Ala Ala Gly Asp Tyr Leu Leu Glu Thr Ala Ala Ser Leu  
35 40 45  
Thr Ile Ile Met Val Val Ser Gly Leu Tyr Leu Trp Trp Ala Lys Gln  
50 55 60  
Arg Gly Ile Lys Ala Met Leu Leu Pro Pro Lys Ser Arg Ala Arg Ser  
65 70 75 80  
Trp Trp Arg Asn Leu His Gly Ala Phe Gly Thr Trp Val Ser Leu Ile  
85 90 95  
Leu Leu Leu Phe Cys Leu Ser Gly Ile Ala Trp Ala Gly Ile Trp Gly  
100 105 110  
Gly Lys Phe Val Gln Ala Trp Asn Gln Phe Pro Ala Gly Lys Trp Gly  
115 120 125  
Val Glu Pro Asn Pro Val Ser Ile Val Pro Thr His Gly Glu Val Leu  
130 135 140  
Asn Asp Gly Lys Val Lys Glu Val Pro Trp Ile Leu Glu Leu Met Pro  
145 150 155 160  
Met Pro Val Ser Gly Thr Thr Val Gly Glu Asn Gly Ile Asn Pro Thr  
165 170 175  
Glu Pro Asn Asn Ile Gly Asn Arg Arg Pro Phe Arg Ala Gly Asn Arg  
180 185 190  
Phe Gln Arg Ala Leu Ser Val Glu Phe Ala Gln Arg Arg Gly Arg Gly  
195 200 205  
Met Asp Phe Val Ala Gly Phe Tyr Glu Leu  
210 215

<210> 771

<211> 654

<212> DNA

<213> Neisseria meningitidis

<400> 771

atgggtcgcg tgcgtcctta tacggcaaaa gtggtcagta ccatgccgcg caatcagggt 60  
tggtattaca cgatggatga aatccacagc gatatgatgc tcggtgcggc aggcgattat 120  
cttttgaaa cggcagcttc actgaccatt attatggttg tcagcggctt gtacctttgg 180  
tgggtgaaac ggcgcggcat caaggcgatg ctgctgccgt caaaaggcar ggcgcgttct 240  
tggtggcgga atctgcacgg cacgtttgga acttgggtgt cgttgatttt gctgttgttc 300

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tgcctgtcgg gtattgcttg ggcgggtatt tggggcggca agttcgtaca ggcttggagt 360
cagttccctg ccggtaaatg ggggtgtcgaa ccgaaccccg tttcagtcgt gccgacccac 420
ggcgaggtat tgaatgacgg caaggttaag gaagtgccgt gggttttgga gcttacgcct 480
atgcctgttt cagggacgac ygtgggcaaa gacggcatta accctgacga gccgatgaca 540
ttggaaccg tcgaccgctt tgcgcggnga aatcggtttc aaagggcggt atcagttgaa 600
tttgcccaaa ggcgaggacg gcgtatggac tttgtcgcag gattctatga gtta 654

```

<210> 772

<211> 218

<212> PRT

<213> *Neisseria meningitidis*

<400> 772

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Met Val Ala Val Asp Pro Tyr Thr Ala Lys Val Val Ser Thr Met Pro
  1             5             10             15

```

```

Arg Asn Gln Gly Trp Tyr Tyr Thr Met Asp Glu Ile His Ser Asp Met
      20             25             30

```

```

Met Leu Gly Ala Ala Gly Asp Tyr Leu Leu Glu Thr Ala Ala Ser Leu
      35             40             45

```

```

Thr Ile Ile Met Val Val Ser Gly Leu Tyr Leu Trp Trp Val Lys Arg
      50             55             60

```

```

Arg Gly Ile Lys Ala Met Leu Leu Pro Ser Lys Gly Xaa Ala Arg Ser
      65             70             75             80

```

```

Trp Trp Arg Asn Leu His Gly Thr Phe Gly Thr Trp Val Ser Leu Ile
      85             90             95

```

```

Leu Leu Leu Phe Cys Leu Ser Gly Ile Ala Trp Ala Gly Ile Trp Gly
      100            105            110

```

```

Gly Lys Phe Val Gln Ala Trp Ser Gln Phe Pro Ala Gly Lys Trp Gly
      115            120            125

```

```

Val Glu Pro Asn Pro Val Ser Val Val Pro Thr His Gly Glu Val Leu
      130            135            140

```

```

Asn Asp Gly Lys Val Lys Glu Val Pro Trp Val Leu Glu Leu Thr Pro
      145            150            155            160

```

```

Met Pro Val Ser Gly Thr Thr Val Gly Lys Asp Gly Ile Asn Pro Asp
      165            170            175

```

```

Glu Pro Met Thr Leu Glu Thr Val Asp Arg Phe Ala Arg Xaa Asn Arg
      180            185            190

```

```

Phe Gln Arg Ala Leu Ser Val Glu Phe Ala Gln Arg Arg Gly Arg Arg
      195            200            205

```

```

Met Asp Phe Val Ala Gly Phe Tyr Glu Leu
      210            215

```

<210> 773  
 <211> 653  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 773  
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 tggattacg cgatggatga aatccacagc gatatgatgc tcggttcgac aggtgattat 120  
 cttttgaaa cggctgcac gctgacgatt atcatgataa tcagcgggtt gtacctttgg 180  
 tgggtgaaac ggcgcggcat caaggcgatg ctgctgccgc caaaaggcag ggcgcgttct 240  
 tgggtggcga atctgcacgg cgcgtttgga acttgggtgt cgttgatttt actgttggtc 300  
 tgccctgcgg gtattgcttg ggcaggatatt tggggcggca agttcgtgca ggcttgagat 360  
 cagttcccgg caggcaaatg ggtgtcgaa ccgaaccctg tttcagtcgt gccgaccac 420  
 ggcgaggtat tgaatgacgg caaggttaag gaagtgccgt gggttttgga gcttacgcct 480  
 atgcctgttt cagggacgac tgtgggcaaa gacggtatta accctgacga gccgatgaca 540  
 ttggaaaccg tcgaccgttt tgcgcgggaa atcggtttca aaggcggtta tcagctgaat 600  
 ttgccc aaag gcgaggacgg cgtatggact ttgtgcagg attctatgag tta 653

<210> 774  
 <211> 218  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 774  
 Met Val Ala Val Asp Pro Tyr Thr Ala Lys Val Val Ser Thr Met Pro  
 1 5 10 15  
 Arg Asn Gln Gly Trp Tyr Tyr Ala Met Asp Glu Ile His Ser Asp Met  
 20 25 30  
 Met Leu Gly Ser Thr Gly Asp Tyr Leu Leu Glu Thr Ala Ala Ser Leu  
 35 40 45  
 Thr Ile Ile Met Ile Ile Ser Gly Leu Tyr Leu Trp Trp Val Lys Arg  
 50 55 60  
 Arg Gly Ile Lys Ala Met Leu Leu Pro Pro Lys Gly Arg Ala Arg Ser  
 65 70 75 80  
 Trp Trp Arg Asn Leu His Gly Ala Phe Gly Thr Trp Val Ser Leu Ile  
 85 90 95  
 Leu Leu Leu Phe Cys Leu Ser Gly Ile Ala Trp Ala Gly Ile Trp Gly  
 100 105 110  
 Gly Lys Phe Val Gln Ala Trp Ser Gln Phe Pro Ala Gly Lys Trp Gly  
 115 120 125  
 Val Glu Pro Asn Pro Val Ser Val Val Pro Thr His Gly Glu Val Leu  
 130 135 140  
 Asn Asp Gly Lys Val Lys Glu Val Pro Trp Val Leu Glu Leu Thr Pro  
 145 150 155 160  
 Met Pro Val Ser Gly Thr Thr Val Gly Lys Asp Gly Ile Asn Pro Asp  
 165 170 175

Glu Pro Met Thr Leu Glu Thr Val Asp Arg Phe Ala Arg Xaa Asn Arg  
180 185 190

Phe Gln Arg Ala Leu Ser Ala Glu Phe Ala Gln Arg Arg Gly Arg Arg  
195 200 205

Met Asp Phe Val Ala Gly Phe Tyr Glu Leu  
210 215

<210> 775  
<211> 642  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 775  
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ggacgactgt gggtgaaaac ggcattaacc ccaccgagcc caataacatt ggaaaccgtc 120  
gaccgtttcg cgcgggaaat cggtttcaaa gggcggtatc agttgaattt gcccaaaggc 180  
gaggacgggg tatggacttt gtgcgaggat tctatgagtt atgacatgat cagcccgttt 240  
gccgaccgca cgggtacatat cgaccagtac agcggcgaga ttcttgccga catccgtttt 300  
gacgattaca acccgttcgg caaatttatg gcggaagca ttgcgctgca tatggggact 360  
ttgggctggt ggagcgtggt ggcgaacgtc gtgttctgcc ttgccgtgat ttttatcggc 420  
atcagcggt gcgtgatgtg gtggaaacgc cgtccgtccg gcgtggcggg cattgttcct 480  
ccggcgcaaa aaatcaaact gcccgctctg tggcgatgg cattgccgt gctgttgatt 540  
gcactgcttt tcccgaccgc gctgcttgcc attgccgtga tttggctggt ggataccttg 600  
ctgctgtcgc ggattcctgt gttgaggaaa tggtttaaat ga 642

<210> 776  
<211> 213  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 776  
Met Thr Ala Arg Leu Arg Lys Cys Arg Gly Phe Trp Ser Leu Cys Leu  
1 5 10 15  
Cys Leu Ser Gln Gly Arg Leu Trp Val Lys Thr Ala Leu Thr Pro Pro  
20 25 30  
Ser Pro Ile Thr Leu Glu Thr Val Asp Arg Phe Ala Arg Glu Ile Gly  
35 40 45  
Phe Lys Gly Arg Tyr Gln Leu Asn Leu Pro Lys Gly Glu Asp Gly Val  
50 55 60  
Trp Thr Leu Ser Gln Asp Ser Met Ser Tyr Asp Met Ile Ser Pro Phe  
65 70 75 80  
Ala Asp Arg Thr Val His Ile Asp Gln Tyr Ser Gly Glu Ile Leu Ala  
85 90 95  
Asp Ile Arg Phe Asp Asp Tyr Asn Pro Phe Gly Lys Phe Met Ala Ala  
100 105 110



Ser Ile Ala Leu His Met Gly Thr Leu Gly Trp Trp Ser Val Leu Ala  
 115 120 125  
 Asn Val Val Phe Cys Leu Ala Val Ile Phe Ile Gly Ile Ser Gly Cys  
 130 135 140  
 Val Met Trp Trp Lys Arg Arg Pro Ser Gly Val Ala Gly Ile Val Pro  
 145 150 155 160  
 Pro Ala Gln Lys Ile Lys Leu Pro Val Trp Trp Ala Met Ala Leu Pro  
 165 170 175  
 Leu Leu Leu Ile Ala Leu Leu Phe Pro Thr Ala Leu Leu Ala Ile Ala  
 180 185 190  
 Val Ile Trp Leu Leu Asp Thr Leu Leu Leu Ser Arg Ile Pro Val Leu  
 195 200 205  
 Arg Lys Trp Phe Lys  
 210

<210> 777  
 <211> 642  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 777  
 atgacggcaa ggttaaggaa gtgccgtggg ttttgagact tacgcctatg cctgtttcag 60  
 ggacgacygt gggcaaagac ggcatataacc ctgacgagcc gatgacattg gaaaccgtcg 120  
 accgctttgc gcgngaaat cggtttcaaa gggcggtatc agttgaattt gcccaaaggc 180  
 gaggacggcg tatggacttt gtgcgaggat tctatgagtt acgacatgat cagcccgttt 240  
 gccgaccgca cggtagatat cgaccagtac agcggcaaaa tccttgccga catccgtttt 300  
 gacgattaca acccgttcgg caaatttatg gcggaagca ttgcgctgca tatggggact 360  
 ctgggctggt ggagcgtggt ggcgaacgtc ttgttctgcc ttgccgtcat ttttatcggt 420  
 atcagcggct gcgtgatgtg gtggaaacgc cgtccgaccg gagcgggtggg catcgttccg 480  
 ccggcgcaga aagtcgaagc gccgggttgg tggatgatgg cattgccgct attggcaatc 540  
 gcaactgctc tcccgcacct actgcttgcc attgccgtga tttggctggt ggatacgtg 600  
 ctgttgctgc gcgattcctgt tttgaggaga tggtttaaat ga 642

<210> 778  
 <211> 213  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 778  
 Met Thr Ala Arg Leu Arg Lys Cys Arg Gly Phe Trp Ser Leu Arg Leu  
 1 5 10 15  
 Cys Leu Phe Gln Gly Arg Xaa Trp Ala Lys Thr Ala Leu Thr Leu Thr  
 20 25 30  
 Ser Arg Xaa His Trp Lys Pro Ser Thr Ala Leu Arg Gly Glu Ile Gly  
 35 40 45  
 Phe Lys Gly Arg Tyr Gln Leu Asn Leu Pro Lys Gly Glu Asp Gly Val

50	55	60
Trp Thr Leu Ser Gln Asp Ser Met Ser Tyr Asp Met Ile Ser Pro Phe		
65	70	75 80
Ala Asp Arg Thr Val His Ile Asp Gln Tyr Ser Gly Lys Ile Leu Ala		
	85	90 95
Asp Ile Arg Phe Asp Asp Tyr Asn Pro Phe Gly Lys Phe Met Ala Ala		
	100	105 110
Ser Ile Ala Leu His Met Gly Thr Leu Gly Trp Trp Ser Val Leu Ala		
	115	120 125
Asn Val Leu Phe Cys Leu Ala Val Ile Phe Ile Gly Ile Ser Gly Cys		
	130	135 140
Val Met Trp Trp Lys Arg Arg Pro Thr Gly Ala Val Gly Ile Val Pro		
	145	150 155 160
Pro Ala Gln Lys Val Lys Leu Pro Val Trp Trp Met Met Ala Leu Pro		
	165	170 175
Leu Leu Ala Ile Ala Leu Leu Phe Pro Thr Ser Leu Leu Ala Ile Ala		
	180	185 190
Val Ile Trp Leu Leu Asp Thr Leu Leu Leu Ser Arg Ile Pro Val Leu		
	195	200 205
Arg Arg Trp Phe Lys		
210		

<210> 779  
 <211> 641  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 779  
 atgacggcaa ggttaaggaa gtgccgtggg ttttggagct tacgcctatg cctgttttcag 60  
 ggacgactgt gggcaaagac ggtattaacc ctgacgagcc gatgacattg gaaaccgtcg 120  
 accgtttttgc gcgggaaatc ggtttcaaag ggcgttatca gctgaatttg cccaaaggcg 180  
 aggacggcgt atggactttg tcgcaggatt ctatgagtta cgacatgac agcccgtttg 240  
 ctgaccgcac ggtgcatatc gaccagtaca gcggcaagat tcttgccgac atccgttttg 300  
 acgattacaa cccgttcggc aaatttatgg cggcaagcat tgcgctgcat atggggactt 360  
 tgggctggtg gagcgtgttg gcgaacgttt tgttctgcct tgccgtgatt tttatcggca 420  
 tcagcggctg cgtgatgttg tggaaacgcc gtccgtccgg cgcggtgggc atggttcgcg 480  
 cggcgcaaaa aatcaagctg cccgtctggt gggcaatggc ggtgccgctg ctgctgattg 540  
 cattgctttt cccgaccgcg ttgcttgcca ttgccgtgat ttggctgttg gatacgtcgc 600  
 tgttgtcgcg gattcctgtt ttgaggagat ggtttaaatg a 641

<210> 780  
 <211> 212  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 780

Met Thr Ala Arg Leu Arg Lys Cys Arg Gly Phe Trp Ser Leu Arg Leu  
1 5 10 15

Cys Leu Phe Gln Gly Arg Leu Trp Ala Lys Thr Val Leu Thr Leu Thr  
20 25 30

Ser Arg His Trp Lys Pro Ser Thr Val Leu Arg Xaa Glu Ile Gly Phe  
35 40 45

Lys Gly Arg Tyr Gln Leu Asn Leu Pro Lys Gly Glu Asp Gly Val Trp  
50 55 60

Thr Leu Ser Gln Asp Ser Met Ser Tyr Asp Met Ile Ser Pro Phe Ala  
65 70 75 80

Asp Arg Thr Val His Ile Asp Gln Tyr Ser Gly Lys Ile Leu Ala Asp  
85 90 95

Ile Arg Phe Asp Asp Tyr Asn Pro Phe Gly Lys Phe Met Ala Ala Ser  
100 105 110

Ile Ala Leu His Met Gly Thr Leu Gly Trp Trp Ser Val Leu Ala Asn  
115 120 125

Val Leu Phe Cys Leu Ala Val Ile Phe Ile Gly Ile Ser Gly Cys Val  
130 135 140

Met Trp Trp Lys Arg Arg Pro Ser Gly Ala Val Gly Met Val Pro Pro  
145 150 155 160

Ala Gln Lys Ile Lys Leu Pro Val Trp Trp Ala Met Ala Val Pro Leu  
165 170 175

Leu Leu Ile Ala Leu Leu Phe Pro Thr Ala Leu Leu Ala Ile Ala Val  
180 185 190

Ile Trp Leu Leu Asp Thr Leu Leu Leu Ser Arg Ile Pro Val Leu Arg  
195 200 205

Arg Trp Phe Lys  
210

<210> 781

<211> 558

<212> DNA

<213> Neisseria gonorrhoeae

<400> 781

atgcacgacc acggcgccat ggatcgccgc ctccccgctt tcggaagtct gatgcggcga 60  
gccgtaaatac adatcgacgc tgacggattt gaacctgcc tcacggggcg catcgatgac 120  
ttctttggtt tcttcgtacg tttggatgcg gttgactgcc gcctgcactt tggggtcgaa 180  
atcctgaatg ccgacgctca tgcggttgaa gccgagtctg ccgagcatga ggacgggtgc 240  
gcggtctgact ttgcgcgggt cgatttcgat ggaatattcg ccggacggta tcagttcgaa 300

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atgtttgctg atcatgcgga agacacgttc gatctgttcg tcgctcaaaa aggtcggcgt 360
gccgccgccc aagtgcagtt gggcaagctg gtgccgtccg ttcagatgtg gagcgagcag 420
ttccatttct ttttcaagat attcgatgta ggtatcggcg cggcttttgt ctttggatgat 480
gattttgttg cagccgcagt agtagcagat ggtgttgcaa aacggaatgt gaatgtaaag 540
ggaaagcggc ttgtttta 558

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<210> 782

<211> 185

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 782

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Met His Asp His Gly Ala Met Asp Arg Arg Leu Pro Ala Phe Gly Ser
  1             5             10             15

Leu Met Arg Arg Ala Val Asn Xaa Ile Asp Ala Asp Gly Phe Glu Pro
      20             25             30

Cys Leu Thr Gly Gly Ile Asp Asp Phe Phe Gly Phe Phe Val Ala Leu
      35             40             45

Asp Ala Val Asp Cys Arg Leu His Phe Gly Val Glu Ile Leu Asn Ala
      50             55             60

Asp Ala His Ala Val Glu Ala Glu Ser Ala Glu His Glu Asp Gly Val
      65             70             75             80

Ala Ala Asp Phe Ala Arg Val Asp Phe Asp Gly Ile Phe Ala Gly Arg
      85             90             95

Tyr Gln Phe Glu Met Phe Ala Asp His Ala Glu Asp Thr Phe Asp Leu
      100            105            110

Phe Val Ala Gln Lys Gly Arg Arg Ala Ala Ala Glu Val Gln Leu Gly
      115            120            125

Lys Leu Val Pro Ser Val Gln Met Trp Ser Glu Gln Phe His Phe Phe
      130            135            140

Phe Lys Ile Phe Asp Val Gly Ile Gly Ala Ala Phe Val Phe Gly Asp
      145            150            155            160

Asp Phe Val Ala Ala Ala Val Val Ala Asp Gly Val Ala Lys Arg Asn
      165            170            175

Val Asn Val Lys Gly Lys Arg Phe Val
      180            185

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<210> 783

<211> 531

<212> DNA

<213> *Neisseria meningitidis*

<400> 783

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atggyggttt tgatgcwcmg aagtctggtg cggcaggccg taaatcaaat cgacgctgac 60
ggatttgaac cccgcttcgc gcgcgcgcac gatgacttct ttggtttctt cgtaactttg 120
gatgcggttg accgcgcgct gcactttggg gtcgaaatcc tgaatgccga tgctcatgcg 180
gttgaagccg agtctgccga gcatgaggac ggtgtcgcgg ctgactttgc gcgggtcgat 240
ttcgaatggag tattcgccgg tggggattaa ctcgaaatgt ttgcgtatca tgcggaagac 300
acgttcgata tgttcgtcgc tcaaaaaggt gcgtgccccg ccgaagtgcg gttgggcaag 360
ctggtgcggt cgttcagat gtggagcgag cagttccatt tctttttcaa gatattcgat 420
gtaggcacgc gcgcggcttt tgtctttggt gatgattttg ttgcagccgc agtagtagca 480
gatggtgttg cagaacggaa tgtgaatgta aagggaagc ggtttgttta a 531

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<210> 784  
 <211> 176  
 <212> PRT  
 <213> Neisseria meningitidis

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<400> 784
Met Xaa Val Leu Met Xaa Arg Ser Leu Val Arg Gln Ala Val Asn Gln
  1              5              10              15

Ile Asp Ala Asp Gly Phe Glu Pro Arg Phe Ala Arg Arg Ile Asp Asp
      20              25              30

Phe Phe Gly Phe Phe Val Thr Leu Asp Ala Val Asp Arg Arg Leu His
      35              40              45

Phe Gly Val Glu Ile Leu Asn Ala Asp Ala His Ala Val Glu Ala Glu
      50              55              60

Ser Ala Glu His Glu Asp Gly Val Ala Ala Asp Phe Ala Arg Val Asp
      65              70              75              80

Phe Asp Gly Val Phe Ala Gly Gly Asp Xaa Leu Glu Met Phe Ala Tyr
      85              90              95

His Ala Glu Asp Thr Phe Asp Leu Phe Val Ala Gln Lys Gly Ala Cys
      100             105             110

Pro Ala Glu Val Gln Leu Gly Lys Leu Val Pro Ser Val Gln Met Trp
      115             120             125

Ser Glu Gln Phe His Phe Phe Phe Lys Ile Phe Asp Val Gly Ile Gly
      130             135             140

Ala Ala Phe Val Phe Gly Asp Asp Phe Val Ala Ala Ala Val Val Ala
      145             150             155             160

Asp Gly Val Ala Glu Arg Asn Val Asn Val Lys Gly Lys Arg Phe Val
      165             170             175

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<210> 785  
 <211> 534  
 <212> DNA

<213> Neisseria meningitidis

<400> 785

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atggtggttt tgatgctccg aagtctggtg cggcaggccg taaatcaaat cgacgctgac 60
ggatttgaac cccgcttcgc gcgcgcgcac gatgacttct ttggtttctt cgtaactttg 120
gatgcggttg accgcgcct gcactttggg gtcgaaatcc tgaatgccga tgctcatgcg 180
gttgaagccg agtctgccga gcatgaggac ggtgtcgcgg ctgactttgc gcgggtcgat 240
ttcgatggag tattcgccgg tggggattaa ctcgaaatgt ttgcgtatca tgcggaagac 300
acgttcgatt tggtcgtcgc tcaaaaaggt cggcgtgccg ccgccgaagt gcagttgggc 360
aagctggtgc cgtccgttca gatgtggagc gagcagttcc atttctttt caagaaattc 420
gatgtaggca tcggcgccgg ttttgtctt ggtgatgatt ttgttgcagc cgcagtagta 480
gcagatggtg ttgcagaacg gaatgtgaat gtaaagggaa agcggtttgt ttaa 534
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<210> 786

<211> 176

<212> PRT

<213> Neisseria meningitidis

<400> 786

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Met Val Val Leu Met Leu Arg Ser Leu Val Arg Gln Ala Val Asn Gln
  1             5             10             15

Ile Asp Ala Asp Gly Phe Glu Pro Arg Phe Ala Arg Arg Ile Asp Asp
      20             25             30

Phe Phe Gly Phe Phe Val Thr Leu Asp Ala Val Asp Arg Arg Leu His
      35             40             45

Phe Gly Val Glu Ile Leu Asn Ala Asp Ala His Ala Val Glu Ala Glu
      50             55             60

Ser Ala Glu His Glu Asp Gly Val Ala Ala Asp Phe Ala Arg Val Asp
      65             70             75             80

Phe Asp Gly Val Phe Ala Gly Gly Asp Leu Glu Met Phe Ala Tyr His
      85             90             95

Ala Glu Asp Thr Phe Asp Leu Val Val Ala Gln Lys Gly Arg Arg Ala
      100            105            110

Ala Ala Glu Val Gln Leu Gly Lys Leu Val Pro Ser Val Gln Met Trp
      115            120            125

Ser Glu Gln Phe His Phe Phe Phe Lys Lys Phe Asp Val Gly Ile Gly
      130            135            140

Ala Ala Phe Val Phe Gly Asp Asp Phe Val Ala Ala Ala Val Val Ala
      145            150            155            160

Asp Gly Val Ala Glu Arg Asn Val Asn Val Lys Gly Lys Arg Phe Val
      165            170            175
```

<210> 787  
<211> 360  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 787  
atggaattca ggcaccaggt agtggtagtt ggtgtcgaac catttggtca tttcgatggc 60  
gaattggtct ttgttgccgc gcgccagttg gaagaattgt tccaaaggca ggttttggct 120  
atcgaagccg aaacgggcgga gaatcgcgcc cgtggatact tgcaggtcga ggatgtgatg 180  
gtagaaagtg aaatcacgta cagcaacgta atcagcgta ggagcagctt ggtgtttcca 240  
gtttttctcg cgcaggtctt tggcaacgta gagcagctct tgttcactga tctctttgcg 300  
ccagtatttt tcttgggcga atttcaattc acggaaggcg ccgacacgcg ggaagcctga 360

<210> 788  
<211> 119  
<212> PRT  
<213> *Neisseria gonorrhoeae*

<400> 788  
Met Glu Phe Arg His Gln Val Val Val Val Gly Val Glu Pro Phe Gly  
1 5 10 15  
His Phe Asp Gly Glu Leu Val Phe Val Ala Ala Arg Gln Leu Glu Glu  
20 25 30  
Leu Phe Gln Arg Gln Val Leu Ala Ile Glu Ala Glu Thr Gly Gly Asn  
35 40 45  
Arg Ala Arg Gly Tyr Leu Gln Val Glu Asp Val Met Val Glu Ser Glu  
50 55 60  
Ile Thr Tyr Ser Asn Val Ile Ser Val Arg Ser Ser Leu Val Phe Pro  
65 70 75 80  
Val Phe Leu Ala Gln Val Phe Gly Asn Val Glu Gln Leu Leu Phe Thr  
85 90 95  
Asp Leu Phe Ala Pro Val Phe Phe Leu Gly Glu Phe Gln Phe Thr Glu  
100 105 110  
Gly Ala Asp Thr Arg Glu Ala  
115

<210> 789  
<211> 359  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 789  
gtggaattca ggcaccaagt agtggtagtt ggtgtcgaac catttggtca tttcgatagc 60  
gaattggtct ttgttacgcg gcgccagttg gaagaattgt tccaaagaca ggttttggct 120  
gtcgaagccg aagcgggcgga gaatcgcgcc ggtggcgact tgcaggtcga ggatgtggtc 180  
gtagaaagtg aaatcsctac ggcaacgaaa tcggcgttgg cagcgacctg gtgtttccag 240  
tttttctcgc gcaagtcttt agcaacagcc agcaattctt gctcgtgat ttctttgcgc 300

cagtattttt cttgtgcgaa tttcaattcg cggaaggcgc cgacacgcgg gaagcctga 359

<210> 790

<211> 119

<212> PRT

<213> *Neisseria meningitidis*

<400> 790

Val	Glu	Phe	Arg	His	Gln	Val	Val	Val	Val	Gly	Val	Glu	Pro	Phe	Gly
1				5					10					15	
His	Phe	Asp	Ser	Glu	Leu	Val	Phe	Val	Thr	Ala	Arg	Gln	Leu	Glu	Glu
			20					25					30		
Leu	Phe	Gln	Arg	Gln	Val	Leu	Ala	Val	Glu	Ala	Glu	Ala	Gly	Gly	Asn
		35					40					45			
Arg	Ala	Gly	Gly	Asp	Leu	Gln	Val	Glu	Asp	Val	Val	Val	Glu	Ser	Glu
	50					55					60				
Ile	Xaa	Tyr	Gly	Asn	Glu	Ile	Gly	Val	Gly	Ser	Asp	Leu	Val	Phe	Pro
65					70					75					80
Val	Phe	Leu	Ala	Gln	Val	Phe	Ser	Asn	Ser	Gln	Gln	Phe	Leu	Leu	Ala
				85					90					95	
Asp	Phe	Phe	Ala	Pro	Val	Phe	Phe	Leu	Cys	Glu	Phe	Gln	Phe	Ala	Glu
			100					105					110		
Gly	Ala	Asp	Thr	Arg	Glu	Ala									
		115													

<210> 791

<211> 360

<212> DNA

<213> *Neisseria meningitidis*

<400> 791

gtggaattca ggcaccaagt agtggtagtt ggtgtcgaac catttggtca tttcgatagc 60  
gaattgggtct ttgttaccgc gcgccagttg gaagaattgt tccaaagata gggtttggct 120  
gtcgaagccg aagcgggscgg gaatcgcgcc ggtggcgact tgcaggtcga ggatgtggtc 180  
gtagaaagtg aaatcgcccta cggcaacgta atcggcggtg gcagcggcct ggtgtttcca 240  
gtttttctcg cgcaagtctt tagcaacagc cagcaattct tgctcgctga tttctttgcg 300  
ccagtatttt tcttgtgcga atttcaattc gcggaaggca ccgacacgcg ggaagcctga 360

<210> 792

<211> 118

<212> PRT

<213> *Neisseria meningitidis*

<400> 792

Val	Glu	Phe	Arg	His	Gln	Val	Val	Val	Val	Gly	Val	Glu	Pro	Phe	Gly
1				5					10					15	



His Phe Asp Ser Glu Leu Val Phe Val Thr Ala Arg Gln Leu Glu Glu  
20 25 30

Leu Phe Gln Arg Val Leu Ala Val Glu Ala Glu Ala Gly Gly Asn Arg  
35 40 45

Ala Gly Gly Asp Leu Gln Val Glu Asp Val Val Val Glu Ser Glu Ile  
50 55 60

Ala Tyr Gly Asn Val Ile Gly Val Gly Ser Gly Leu Val Phe Pro Val  
65 70 75 80

Phe Leu Ala Gln Val Phe Ser Asn Ser Gln Gln Phe Leu Leu Ala Asp  
85 90 95

Phe Phe Ala Pro Val Phe Phe Leu Cys Glu Phe Gln Phe Ala Glu Gly  
100 105 110

Thr Asp Thr Arg Glu Ala  
115

<210> 793

<211> 669

<212> DNA

<213> Neisseria gonorrhoeae

<400> 793

atggattctt ttttcaaacc ggcagtttgg gcggttttgt ggctgatgtt tgccgtccgc 60  
cccgcccttg ccgacgagtt gaccaacctg ctcagcagcc gcgagcagat tctcagacag 120  
tttgccgaag acgaacagcc cgttttacct gtcaaccgag ccccgcccg gcgggcgggc 180  
aatgccgacg aactcatcgg cggcgcgatg gggcttaacg aacagcccg tgtacgcgtc 240  
aaccgagccn ccgcccggcg ggcgggcaat gccgacaaac tcatcggcag cgcgatgcgg 300  
cttttgggta ttgcctaccg ctacggcggc acatcggtgt ctaccggttt tgactgcagc 360  
ggattcatgc agcacatctt caaacgcgcc atgggcatca acctgccgcg cacgtcggcg 420  
gaacaggcgc ggatgggcgc acccgttgcc cgaagcgaat tgcagcccg ggatatggcg 480  
tttttccgca cgctcggcg cagccgcatt tcccatgtcg gactttatat cggcaacaac 540  
cgcttcatcc acgcgccgcg cacggggaaa aatatcgaat tcaccagcct gagccacaaa 600  
tattggagcg gcaaatatgc gttcgcccg cggtcaaga aaaacgaccc gtcacgcttt 660  
ctgaactga 669

<210> 794

<211> 222

<212> PRT

<213> Neisseria gonorrhoeae

<400> 794

Met Asp Ser Phe Phe Lys Pro Ala Val Trp Ala Val Leu Trp Leu Met  
1 5 10 15

Phe Ala Val Arg Pro Ala Leu Ala Asp Glu Leu Thr Asn Leu Leu Ser  
20 25 30

Ser Arg Glu Gln Ile Leu Arg Gln Phe Ala Glu Asp Glu Gln Pro Val  
35 40 45

Leu Pro Val Asn Arg Ala Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu  
 50 55 60  
 Leu Ile Gly Gly Ala Met Gly Leu Asn Glu Gln Pro Val Val Arg Val  
 65 70 75 80  
 Asn Arg Ala Xaa Ala Arg Arg Ala Gly Asn Ala Asp Lys Leu Ile Gly  
 85 90 95  
 Ser Ala Met Arg Leu Leu Gly Ile Ala Tyr Arg Tyr Gly Gly Thr Ser  
 100 105 110  
 Val Ser Thr Gly Phe Asp Cys Ser Gly Phe Met Gln His Ile Phe Lys  
 115 120 125  
 Arg Ala Met Gly Ile Asn Leu Pro Arg Thr Ser Ala Glu Gln Ala Arg  
 130 135 140  
 Met Gly Ala Pro Val Ala Arg Ser Glu Leu Gln Pro Gly Asp Met Val  
 145 150 155 160  
 Phe Phe Arg Thr Leu Gly Gly Ser Arg Ile Ser His Val Gly Leu Tyr  
 165 170 175  
 Ile Gly Asn Asn Arg Phe Ile His Ala Pro Arg Thr Gly Lys Asn Ile  
 180 185 190  
 Glu Ile Thr Ser Leu Ser His Lys Tyr Trp Ser Gly Lys Tyr Ala Phe  
 195 200 205  
 Ala Arg Arg Val Lys Lys Asn Asp Pro Ser Arg Phe Leu Asn  
 210 215 220

<210> 795  
 <211> 747  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 795  
 ttttcaaacc cggcagtttg ggcggttttg tggctgawgt ttgccgtccg ccccgccctt 60  
 gccgacgagt tgaccaacct gctcagcagc cgcgagcaga ttctcagaca gtttgccgaa 120  
 gacgaacagc ccgtttttacc catcaaccga gccccgcgcc ggcgggcggg caatgccgac 180  
 gaactcatcg gcagcgcgat ggggcttaac gaacagcccg ttttaccgt caaccgagtc 240  
 cccgcccggc gggcgggcaa tgccgacgaa ctcatcgga aocgatggg gcttaacgaa 300  
 cagcccgttt taccgtcaa ccgagcccc gcccgcggg cgggcaatgc cgacgaactc 360  
 atcggaacg cgatgggact tttgggtatt gcctaccgt acggcggaac atcggtttct 420  
 accggttttg actgcagcgg cttcatgcag cacatcttca aacgcgccat gggcatcaac 480  
 ctgcccgcga cgtcggcaga acaggcacgg atgggtaogc cggttgccc aagcgaattg 540  
 cagcccggag atatggtgtt tttcgcacg ctccgcgga gccgatttc ccatgtcggg 600  
 ctttatatcg gcaacaaccg cttcatccac gcgcccgcga cggggaaaaa tatcgaaatc 660  
 accagcctga gccacaaata ttggagcggc aaatacgcgt tcgcccgcgc ggtcaagaaa 720  
 aacgaccctg cccgctttct gaactga 747

<210> 796  
<211> 248  
<212> PRT  
<213> Neisseria meningitidis

<400> 796

Phe Ser Asn Pro Ala Val Trp Ala Val Leu Trp Leu Xaa Phe Ala Val  
1 5 10 15  
Arg Pro Ala Leu Ala Asp Glu Leu Thr Asn Leu Leu Ser Ser Arg Glu  
20 25 30  
Gln Ile Leu Arg Gln Phe Ala Glu Asp Glu Gln Pro Val Leu Pro Ile  
35 40 45  
Asn Arg Ala Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly  
50 55 60  
Ser Ala Met Gly Leu Asn Glu Gln Pro Val Leu Pro Val Asn Arg Val  
65 70 75 80  
Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly Asn Ala Met  
85 90 95  
Gly Leu Asn Glu Gln Pro Val Leu Pro Val Asn Arg Ala Pro Ala Arg  
100 105 110  
Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly Asn Ala Met Gly Leu Leu  
115 120 125  
Gly Ile Ala Tyr Arg Tyr Gly Gly Thr Ser Val Ser Thr Gly Phe Asp  
130 135 140  
Cys Ser Gly Phe Met Gln His Ile Phe Lys Arg Ala Met Gly Ile Asn  
145 150 155 160  
Leu Pro Arg Thr Ser Ala Glu Gln Ala Arg Met Gly Thr Pro Val Ala  
165 170 175  
Arg Ser Glu Leu Gln Pro Gly Asp Met Val Phe Phe Arg Thr Leu Gly  
180 185 190  
Gly Ser Arg Ile Ser His Val Gly Leu Tyr Ile Gly Asn Asn Arg Phe  
195 200 205  
Ile His Ala Pro Arg Thr Gly Lys Asn Ile Glu Ile Thr Ser Leu Ser  
210 215 220  
His Lys Tyr Trp Ser Gly Lys Tyr Ala Phe Ala Arg Arg Val Lys Lys  
225 230 235 240  
Asn Asp Pro Ser Arg Phe Leu Asn  
245

<210> 797

<211> 843  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 797  
 atggattctt ttttcaaacc ggcagtttgg gcggttttgt ggctgatgtt tgccgtccgc 60  
 cccgcccttg cgcagcaggt gaccaacctg ctccagcagc gcgagcagat tctcagacag 120  
 tttgccgaag acgaacagcc cgtttttacc atcaaccgan ccccgccccg gcggggcgggc 180  
 aatgccgacg aactcatcgg cagcgcgatg gggcttaacg aacagcccgt tttaccgctc 240  
 aaccgantcc ccgcccggcg ggcgggcaat gccgacnaac tcatcggcaa cgcgatgggg 300  
 cttaacgaac agcccgtttt acccgctaac cgagtccccg cccggcgggc gggcaatgcc 360  
 gacgaactca tcggcaacgc gatggggcgtt aacgaacagc ccgttttacc cgtcaaccga 420  
 gccccgccc ggcgggcggg caatgccgac gaactcatcg gcaacgcgat gggacttttg 480  
 ggtattgcct accgctacgg cggcacatcg atttctaccg gttttgactg cagcgggcttc 540  
 atgcagcaca ttttcaaacg cgccatgggc atcaacctgc cgcgcacgctc ggcagaacag 600  
 gcgcgggatg gtacgcgggt tgcccgaagc gaattgcagc ccggggatat ggtgtntttc 660  
 cgcacgctcg gcggcagccg catttcccat gtcggacttt atatcggcaa caaccgcttc 720  
 atccacgcgc cgcgcacggg gaaaaatata gaaatcacca gcctgagcca caaatattgg 780  
 agcggcaaat acgcgttcgc ccgcccgggc aagaaaaacg acccgccccg ctttctgaac 840  
 tga 843

<210> 798  
 <211> 280  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 798  
 Met Asp Ser Phe Phe Lys Pro Ala Val Trp Ala Val Leu Trp Leu Met  
 1 5 10 15  
 Phe Ala Val Arg Pro Ala Leu Ala Asp Glu Leu Thr Asn Leu Leu Ser  
 20 25 30  
 Ser Arg Glu Gln Ile Leu Arg Gln Phe Ala Glu Asp Glu Gln Pro Val  
 35 40 45  
 Leu Pro Ile Asn Arg Xaa Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu  
 50 55 60  
 Leu Ile Gly Ser Ala Met Gly Leu Asn Glu Gln Pro Val Leu Pro Val  
 65 70 75 80  
 Asn Arg Xaa Pro Ala Arg Arg Ala Gly Asn Ala Asp Xaa Leu Ile Gly  
 85 90 95  
 Asn Ala Met Gly Leu Asn Glu Gln Pro Val Leu Pro Val Asn Arg Val  
 100 105 110  
 Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly Asn Ala Met  
 115 120 125  
 Gly Leu Asn Glu Gln Pro Val Leu Pro Val Asn Arg Ala Pro Ala Arg  
 130 135 140  
 Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly Asn Ala Met Gly Leu Leu  
 145 150 155 160



Ser Arg Glu Gln Ile Leu Arg Gln Phe Ala Glu Asp Glu Gln Pro Val  
 35 40 45  
 Leu Pro Val Asn Arg Ala Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu  
 50 55 60  
 Leu Ile Gly Gly Ala Met Gly Leu Asn Glu Gln Pro Val Val Arg Val  
 65 70 75 80  
 Asn Arg Ala Xaa Ala Arg Arg Ala Gly Asn Ala Asp Lys Leu Ile Gly  
 85 90 95  
 Ser Ala Met Arg Leu Leu Gly Ile Ala Tyr Arg Tyr Gly Gly Thr Ser  
 100 105 110  
 Val Ser Thr Gly Phe Asp Cys Ser Gly Phe Met Gln His Ile Phe Lys  
 115 120 125  
 Arg Ala Met Gly Ile Asn Leu Pro Arg Thr Ser Ala Glu Gln Ala Arg  
 130 135 140  
 Met Gly Ala Pro Val Ala Arg Ser Glu Leu Gln Pro Gly Asp Met Val  
 145 150 155 160  
 Phe Phe Arg Thr Leu Gly Gly Ser Arg Ile Ser His Val Gly Leu Tyr  
 165 170 175  
 Ile Gly Asn Asn Arg Phe Ile His Ala Pro Arg Thr Gly Lys Asn Ile  
 180 185 190  
 Glu Ile Thr Ser Leu Ser His Lys Tyr Trp Ser Gly Lys Tyr Ala Phe  
 195 200 205  
 Ala Arg Arg Val Lys Lys Asn Asp Pro Ser Arg Phe Leu Asn  
 210 215 220

<210> 801

<211> 756

<212> DNA

<213> Neisseria meningitidis

<400> 801

atggattctt ttttcaaacc ggcagtttgg gcggttttgt ggctgatgtt tgccgtccgc 60  
 cccgcccttg cgcagagatt gaccaacytg ctcagcagcc gcgagcagat tctcagacag 120  
 tttgccgaag acgaacagcc cgtttttacc atcaaccgag cccccgcccg gcggggcgggc 180  
 aatgccgacg aactcatcgg cagcgcgatg gggcttaacg aacagcccggt tttacccgtc 240  
 aaccgagtcc ccgcccggcg ggcgggcaat gccgacgaac tcatcggcaa cgcgatgggg 300  
 cttaacgaac agcccgtttt acccgtcaac cgagcccccg cccggcgggc gggcaatgcc 360  
 gacgaactca tcggcaacgc gatgggactt ttgggtattg cctaccgcta cggcggcaca 420  
 tcggttttcta ccggttttga ctgcagcggc ttcatgcagc acatcttcaa acgcgccatg 480  
 ggcatacaacc tgccgcgcac gtcggcagaa caggcacgga tgggtacgcc ggttgcccga 540  
 agcgaattgc agcccggaga tatggtgttt ttccgcacgc tcggcggcag ccgcatttcc 600  
 catgtcggac tttatatcgg caacaaccgc ttcatccacg cgccgcgcac ggggaaaaat 660  
 atcgaaatca ccagcctgag ccacaaatat tggagcggca aatacgcgtt cgcccggcgg 720  
 gtcaagaaaa acgacccgtc ccgctttctg aactga 756

<210> 802  
<211> 251  
<212> PRT  
<213> Neisseria meningitidis

<400> 802  
Met Asp Ser Phe Phe Lys Pro Ala Val Trp Ala Val Leu Trp Leu Met  
1 5 10 15  
Phe Ala Val Arg Pro Ala Leu Ala Asp Glu Leu Thr Asn Leu Leu Ser  
20 25 30  
Ser Arg Glu Gln Ile Leu Arg Gln Phe Ala Glu Asp Glu Gln Pro Val  
35 40 45  
Leu Pro Ile Asn Arg Ala Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu  
50 55 60  
Leu Ile Gly Ser Ala Met Gly Leu Asn Glu Gln Pro Val Leu Pro Val  
65 70 75 80  
Asn Arg Val Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly  
85 90 95  
Asn Ala Met Gly Leu Asn Glu Gln Pro Val Leu Pro Val Asn Arg Ala  
100 105 110  
Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly Asn Ala Met  
115 120 125  
Gly Leu Leu Gly Ile Ala Tyr Arg Tyr Gly Gly Thr Ser Val Ser Thr  
130 135 140  
Gly Phe Asp Cys Ser Gly Phe Met Gln His Ile Phe Lys Arg Ala Met  
145 150 155 160  
Gly Ile Asn Leu Pro Arg Thr Ser Ala Glu Gln Ala Arg Met Gly Thr  
165 170 175  
Pro Val Ala Arg Ser Glu Leu Gln Pro Gly Asp Met Val Phe Phe Arg  
180 185 190  
Thr Leu Gly Gly Ser Arg Ile Ser His Val Gly Leu Tyr Ile Gly Asn  
195 200 205  
Asn Arg Phe Ile His Ala Pro Arg Thr Gly Lys Asn Ile Glu Ile Thr  
210 215 220  
Ser Leu Ser His Lys Tyr Trp Ser Gly Lys Tyr Ala Phe Ala Arg Arg  
225 230 235 240  
Val Lys Lys Asn Asp Pro Ser Arg Phe Leu Asn  
245 250

<210> 803

<211> 843

<212> DNA

<213> *Neisseria meningitidis*

<400> 803

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cccgcccttg ccgacgagtt gaccaacctg ctcagcagcc gcgagcagat tctcagacag 120
tttgccgaag acgaacagcc cgttttaccc atcaaccgan cccccgcccg gcgggcgggc 180
aatgccgacg aactcatcgg cagcgcgatg gggcttaacg aacagcccgt tttacccgtc 240
aaccgantcc ccgcccggcg ggcgggcaat gccgacnaac tcatcggcaa cgcgatgggg 300
cttaacgaac agcccgtttt acccgtcaac cgagtccccg ccggcggggc gggcaatgcc 360
gacgaactca tcggcaacgc gatggggctt aacgaacagc ccgttttacc cgtcaaccga 420
gcccccgccc ggcgggcggg caatgccgac gaactcatcg gcaacgcgat gggacttttg 480
ggtattgcct accgctacgg cggcacatcg atttctaccg gttttgactg cagcggcttc 540
atgcagcaca tcttcaaacg cgccatgggc atcaacctgc cgcgcacgtc ggcagaacag 600
gcgcgggatg gtacgccggt tgcccgaagc gaattgcagc ccggggatat ggtgtntttc 660
cgcacgctcg gcgcgacggc catttcccat gtcggacttt atatcggcaa caaccgcttc 720
atccacgcgc cgcgcacggg gaaaaatata gaaatacca gcctgagcca caaatattgg 780
agcggcaaat acgcgttcgc ccgcccgggtc aagaaaaacg acccgtcccg ctttctgaac 840
tga
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<210> 804

<211> 280

<212> PRT

<213> *Neisseria meningitidis*

<400> 804

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Met Asp Ser Phe Phe Lys Pro Ala Val Trp Ala Val Leu Trp Leu Met
  1             5             10             15

Phe Ala Val Arg Pro Ala Leu Ala Asp Glu Leu Thr Asn Leu Leu Ser
      20             25             30

Ser Arg Glu Gln Ile Leu Arg Gln Phe Ala Glu Asp Glu Gln Pro Val
      35             40             45

Leu Pro Ile Asn Arg Xaa Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu
      50             55             60

Leu Ile Gly Ser Ala Met Gly Leu Asn Glu Gln Pro Val Leu Pro Val
      65             70             75             80

Asn Arg Xaa Pro Ala Arg Arg Ala Gly Asn Ala Asp Xaa Leu Ile Gly
      85             90             95

Asn Ala Met Gly Leu Asn Glu Gln Pro Val Leu Pro Val Asn Arg Val
      100            105            110

Pro Ala Arg Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly Asn Ala Met
      115            120            125

Gly Leu Asn Glu Gln Pro Val Leu Pro Val Asn Arg Ala Pro Ala Arg
      130            135            140
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Arg Ala Gly Asn Ala Asp Glu Leu Ile Gly Asn Ala Met Gly Leu Leu  
145 150 155 160

Gly Ile Ala Tyr Arg Tyr Gly Gly Thr Ser Ile Ser Thr Gly Phe Asp  
165 170 175

Cys Ser Gly Phe Met Gln His Ile Phe Lys Arg Ala Met Gly Ile Asn  
180 185 190

Leu Pro Arg Thr Ser Ala Glu Gln Ala Arg Met Gly Thr Pro Val Ala  
195 200 205

Arg Ser Glu Leu Gln Pro Gly Asp Met Val Xaa Phe Arg Thr Leu Gly  
210 215 220

Gly Ser Arg Ile Ser His Val Gly Leu Tyr Ile Gly Asn Asn Arg Phe  
225 230 235 240

Ile His Ala Pro Arg Thr Gly Lys Asn Ile Glu Ile Thr Ser Leu Ser  
245 250 255

His Lys Tyr Trp Ser Gly Lys Tyr Ala Phe Ala Arg Arg Val Lys Lys  
260 265 270

Asn Asp Pro Ser Arg Phe Leu Asn  
275 280

<210> 805  
<211> 597  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 805  
atgagcgaaa tcctcaggca gccacgcgtt ctgcttttcc tcacgcttgc cgtgtacgcg 60  
cttgcgatta tcgtgcgcac gcgcacgggc aatatcttct gcaaccccggt actcgctcagc 120  
actatcggtc tgattgccta cctgaaaatc ctccggtatcg attatgcgggt gtaccacaac 180  
gccgcgcaat tcattgattt tcggctgaaa cccgcgcgtcg tcgtgcttgc cgtgccgctc 240  
taccaaaacc gccgtaaaat cttcaaccag tggtcgcccg tcatcgtttc gcagcttgcg 300  
ggcagcggtta cgggcattgt tacggggatg tattttgccc cttggctcgg gccggatacc 360  
caattctcct tcccgcctcg tcttcaatat ctgttattta caccctctgg aatcccaatt 420  
cacaccctgt atgcgcgggt tctcccgcga tttctgttgc ctccgcctct cctgccgcgc 480  
ctcggcccg cgcattgctg ccggttcaca atacttccaa aaaaactacg gccgtttaag 540  
cccctcctcc cagttgtggt cctttctcct ccgggcctcg cccctcccct cttataa 597

<210> 806  
<211> 198  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 806  
Met Ser Glu Ile Leu Arg Gln Pro Ser Val Leu Leu Phe Leu Thr Leu  
1 5 10 15

Ala Val Tyr Ala Leu Ala Ile Ile Val Arg Thr Arg Thr Gly Asn Ile

	20		25		30
Phe Cys Asn Pro Val Leu Val Ser Thr Ile Val Leu Ile Ala Tyr Leu					
	35		40		45
Lys Ile Leu Gly Ile Asp Tyr Ala Val Tyr His Asn Ala Ala Gln Phe					
	50		55		60
Ile Asp Phe Arg Leu Lys Pro Ala Val Val Val Leu Ala Val Pro Leu					
	65		70		75
Tyr Gln Asn Arg Arg Lys Ile Phe Asn Gln Trp Leu Pro Val Ile Val					
		85		90	95
Ser Gln Leu Ala Gly Ser Val Thr Gly Ile Val Thr Gly Met Tyr Phe					
	100		105		110
Ala Ala Trp Leu Gly Pro Asp Thr Gln Phe Ser Phe Pro Pro Arg Leu					
	115		120		125
Gln Tyr Leu Leu Phe Thr Pro Ser Gly Ile Pro Ile His Thr Leu Tyr					
	130		135		140
Ala Arg Val Leu Pro Pro Phe Leu Leu Pro Pro Pro Leu Leu Pro Arg					
	145		150		155
Leu Gly Pro His Thr Leu Arg Arg Phe Thr Ile Leu Pro Lys Lys Leu					
		165		170	175
Arg Pro Phe Lys Pro Leu Leu Pro Val Val Val Leu Ser Pro Pro Gly					
	180		185		190
Leu Ala Pro Pro Leu Leu					
	195				

<210> 807  
 <211> 693  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 807  
 atgaacgaaa tcctcaggca gccagcggtt ctgcttttcc tcacgcttgc cgtgtacgcg 60  
 cttgcgatta tcgtgcgcac gcgcacgggc aatatcttct gcaaccccggt actcgtcagc 120  
 actatcgtgc tgattgccta cctgaaaatc ctcggtatcg attatgcggt gtaccacaac 180  
  
 gccgcgcaat tcattgattt ttggctgaaa cccgccgtcg tcgtgcttgc cgtgccgctc 240  
 taccaaaacc gccgtaaaat cttcaaccag tggctgcccg tcatcgtttc acagcttgcg 300  
 ggcagcggtta cgggcattgt tacagggatg tattttgcc aatggctggg cgcggaacgc 360  
 gaagtgcgtc tctcgtcgc gtccaaatct gttaccaacc ccatcgctat tgaaatcacc 420  
 cgtccatcg gcggcattcc cgccattacc gccgccaccg tcatcattgc cgtctggtc 480  
 ggacagattg ccggttacaa aatgctgaag aacacggtcg tcatgccctc gtccgtgggt 540  
 atgtcgtcgc gcacggcttc gcacgcgatg gggattgccg cctcgtcga acgcagccgc 600  
 cgtatggcgg catacgcggg gctggggctg acgttcaacg gcgtactgac cgcgctgatt 660  
 gcgcgcgtgc tcatccccgt tttgggattt tga 693

<210> 808  
<211> 230  
<212> PRT  
<213> Neisseria meningitidis

<400> 808  
Met Asn Glu Ile Leu Arg Gln Pro Ser Val Leu Leu Phe Leu Thr Leu  
1 5 10 15  
Ala Val Tyr Ala Leu Ala Ile Ile Val Arg Thr Arg Thr Gly Asn Ile  
20 25 30  
Phe Cys Asn Pro Val Leu Val Ser Thr Ile Val Leu Ile Ala Tyr Leu  
35 40 45  
Lys Ile Leu Gly Ile Asp Tyr Ala Val Tyr His Asn Ala Ala Gln Phe  
50 55 60  
Ile Asp Phe Trp Leu Lys Pro Ala Val Val Val Leu Ala Val Pro Leu  
65 70 75 80  
Tyr Gln Asn Arg Arg Lys Ile Phe Asn Gln Trp Leu Pro Val Ile Val  
85 90 95  
Ser Gln Leu Ala Gly Ser Val Thr Gly Ile Val Thr Gly Met Tyr Phe  
100 105 110  
Ala Lys Trp Leu Gly Ala Glu Arg Glu Val Val Leu Ser Leu Ala Ser  
115 120 125  
Lys Ser Val Thr Asn Pro Ile Ala Ile Glu Ile Thr Arg Ser Ile Gly  
130 135 140  
Gly Ile Pro Ala Ile Thr Ala Ala Thr Val Ile Ile Ala Gly Leu Val  
145 150 155 160  
Gly Gln Ile Ala Gly Tyr Lys Met Leu Lys Asn Thr Val Val Met Pro  
165 170 175  
Ser Ser Val Gly Met Ser Leu Gly Thr Ala Ser His Ala Met Gly Ile  
180 185 190  
Ala Ala Ser Leu Glu Arg Ser Arg Arg Met Ala Ala Tyr Ala Gly Leu  
195 200 205  
Gly Leu Thr Phe Asn Gly Val Leu Thr Ala Leu Ile Ala Pro Leu Leu  
210 215 220  
Ile Pro Val Leu Gly Phe  
225 230

<210> 809  
<211> 693  
<212> DNA  
<213> Neisseria meningitidis

<400> 809

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atgaacgaaa tcctcaggca gccgagcatc ctgcttttcc tcacgcttgc cgtgtaacgc 60
cttgcgatta tcgtgcgcac ggcacagggt aatatcttct gcaaccccggt actcgtcagc 120
actatcgctg tgattgccta cctgaaaatc ctcggtatcg attatgcggt gtaccacaac 180
gccgcgcagt ttatcgattt ctggctcaag cccgcgcgctg tcgtgcttgc cgtgccgctc 240
taccaaaacc gccgtaaaat cttcaaccaa tggctgcccgc tcatcgtttc gcagcttgcg 300
ggcagcgtta cgggcattgt tacgggggatg tattttgccca aatggctggg cgcggaacgc 360
gaagtcgtcc tctcgctcgc gtccaaatct gttaccaatc ctatcgccat cgaaatcacc 420
cgctccatcg gcggcattcc cgccattacc gccgccaccg tcatcattgc cggcctggtc 480
ggacagattg ccggttacaa aatgttgaaa aacacggctg ttatgccctc atctgtcggg 540
atgtcgctcg gcacggcttc gcacgcgatg ggcattgccg cctcgctcga acgcagccgc 600
cgcatggcgg catacgcggg gctggggctg acgttcaacg gcgtactgac cgcgctgatt 660
gcgcgcgtgc ttatccccgt tttgggattt tga 693
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<210> 810

<211> 230

<212> PRT

<213> Neisseria meningitidis

<400> 810

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Met Asn Glu Ile Leu Arg Gln Pro Ser Ile Leu Leu Phe Leu Thr Leu
  1             5             10             15
```

```
Ala Val Tyr Ala Leu Ala Ile Ile Val Arg Thr Arg Thr Gly Asn Ile
      20             25             30
```

```
Phe Cys Asn Pro Val Leu Val Ser Thr Ile Val Leu Ile Ala Tyr Leu
      35             40             45
```

```
Lys Ile Leu Gly Ile Asp Tyr Ala Val Tyr His Asn Ala Ala Gln Phe
      50             55             60
```

```
Ile Asp Phe Trp Leu Lys Pro Ala Val Val Val Leu Ala Val Pro Leu
      65             70             75             80
```

```
Tyr Gln Asn Arg Arg Lys Ile Phe Asn Gln Trp Leu Pro Val Ile Val
      85             90             95
```

```
Ser Gln Leu Ala Gly Ser Val Thr Gly Ile Val Thr Gly Met Tyr Phe
     100             105             110
```

```
Ala Lys Trp Leu Gly Ala Glu Arg Glu Val Val Leu Ser Leu Ala Ser
     115             120             125
```

```
Lys Ser Val Thr Asn Pro Ile Ala Ile Glu Ile Thr Arg Ser Ile Gly
     130             135             140
```

```
Gly Ile Pro Ala Ile Thr Ala Ala Thr Val Ile Ile Ala Gly Leu Val
     145             150             155             160
```

```
Gly Gln Ile Ala Gly Tyr Lys Met Leu Lys Asn Thr Val Val Met Pro
     165             170             175
```

```
Ser Ser Val Gly Met Ser Leu Gly Thr Ala Ser His Ala Met Gly Ile
     180             185             190
```

Ala Ala Ser Leu Glu Arg Ser Arg Arg Met Ala Ala Tyr Ala Gly Leu  
195 200 205

Gly Leu Thr Phe Asn Gly Val Leu Thr Ala Leu Ile Ala Pro Leu Leu  
210 215 220

Ile Pro Val Leu Gly Phe  
225 230

<210> 811

<211> 345

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 811

atgaacatca tccgcgcgct cctcatcatc ctcggtgcc tgcgcgcg cgaaaccgcc 60  
gttttcctag caggcatcaa actgcccggc agcatcgctc gcatgggcgt gctgtttgcg 120  
cttttgcagg cgggttggt caaaacgtct tggctgcaac agcttaccga cgcgctgatg 180  
gcaaacctga cgctgttcct cgtgcgcgcc tgcgtggcgg tcatcagcta ttgggatttg 240  
attgccgacg attggtttct gatactggtt tccgcctccg ccagcacttt gtgcgtactg 300  
ctgggttacgg gcaaggttca ccgctggata cggagcatta tctga 345

<210> 812

<211> 114

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 812

Met Asn Ile Ile Arg Ala Leu Leu Ile Ile Leu Gly Cys Leu Ala Ala  
1 5 10 15

Gly Glu Thr Ala Val Phe Leu Ala Gly Ile Lys Leu Pro Gly Ser Ile  
20 25 30

Val Gly Met Gly Val Leu Phe Ala Leu Leu Gln Ala Gly Trp Leu Lys  
35 40 45

Thr Ser Trp Leu Gln Gln Leu Thr Asp Ala Leu Met Ala Asn Leu Thr  
50 55 60

Leu Phe Leu Val Pro Pro Cys Val Ala Val Ile Ser Tyr Leu Asp Leu  
65 70 75 80

Ile Ala Asp Asp Trp Phe Ser Ile Leu Val Ser Ala Ser Ala Ser Thr  
85 90 95

Leu Cys Val Leu Leu Val Thr Gly Lys Val His Arg Trp Ile Arg Ser  
100 105 110

Ile Ile

<210> 813

<211> 203  
<212> DNA  
<213> Neisseria meningitidis

<400> 813  
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ccgcctgcgt ggcggtcac agctatttgg atttgattgc cgacgattgg ttttcgatac 120  
tggtttccgc ctccgccagc actttgtgcg tactgctggt tacgggcaaa gtccaccggt 180  
ggatacgggg tattatccga tga 203

<210> 814  
<211> 67  
<212> PRT  
<213> Neisseria meningitidis

<400> 814  
Thr Ser Xaa Leu Gln Gln Leu Thr Asp Ala Leu Met Ser Asn Leu Thr  
1 5 10 15  
Leu Phe Leu Val Pro Pro Cys Val Ala Val Ile Ser Tyr Leu Asp Leu  
20 25 30  
Ile Ala Asp Asp Trp Phe Ser Ile Leu Val Ser Ala Ser Ala Ser Thr  
35 40 45  
Leu Cys Val Leu Leu Val Thr Gly Lys Val His Arg Trp Ile Arg Gly  
50 55 60  
Ile Ile Arg  
65

<210> 815  
<211> 345  
<212> DNA  
<213> Neisseria meningitidis

<400> 815  
atgaacatca tccgcgcgct cctcatcatc ctcggtgcc tcgccaccgg cgaaaccgcc 60  
gttttcctag caggcatcaa actgcccgcc agcatcgctg gcatgggct actgtttgcg 120  
cttttgacag cgggttgggt caaaacgtct tggctgcaac agcttaccga cgcgctgatg 180  
gcgaatctga cggtgtttct cgtgccgccc tgcgtggcgg tcatcagcta tttggatttg 240  
attgccgacg attgttttgc gatactggtt tccgcctccg ccagcacttt gtgcgtactg 300  
ctggttacag gcaaggttca ccgctggata cggagcatta tctga 345

<210> 816  
<211> 114  
<212> PRT  
<213> Neisseria meningitidis

<400> 816  
Met Asn Ile Ile Arg Ala Leu Leu Ile Ile Leu Gly Cys Leu Ala Thr  
1 5 10 15

Gly Glu Thr Ala Val Phe Leu Ala Gly Ile Lys Leu Pro Gly Ser Ile  
                   20                  25                  30  
 Val Gly Met Gly Val Leu Phe Ala Leu Leu Gln Ala Gly Trp Val Lys  
                   35                  40                  45  
 Thr Ser Trp Leu Gln Gln Leu Thr Asp Ala Leu Met Ala Asn Leu Thr  
                   50                  55                  60  
 Leu Phe Leu Val Pro Pro Cys Val Ala Val Ile Ser Tyr Leu Asp Leu  
                   65                  70                  75                  80  
 Ile Ala Asp Asp Trp Phe Ser Ile Leu Val Ser Ala Ser Ala Ser Thr  
                   85                  90                  95  
 Leu Cys Val Leu Leu Val Thr Gly Lys Val His Arg Trp Ile Arg Ser  
                   100                  105                  110  
 Ile Ile

<210> 817  
 <211> 324  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 817  
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 gccaaacagg aggttaagga agcgggttcaa gccgttgagt ccgatgttaa agacactgcg 120  
 gcttctgccg ccgagtctgc cgcttctgcc gtcgaagaag cgaaagacca agtcaaagat 180  
 gctgcggtcg atgcaaaggc aagtgccgag gaagctgtaa ctgaagccaa agaagctgta 240  
 actgaagcag ctaaagatac tttgaacaaa gctgccgacg cgactcagga agcggcgacac 300  
 aaaatgaaag atgccgccaa ataa 324

<210> 818  
 <211> 107  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 818  
 Met Lys Lys Leu Leu Ile Ala Ala Met Met Ala Ala Ala Leu Ala Ala  
   1                  5                  10                  15  
 Cys Ser Gln Glu Ala Lys Gln Glu Val Lys Glu Ala Val Gln Ala Val  
                   20                  25                  30  
 Glu Ser Asp Val Lys Asp Thr Ala Ala Ser Ala Ala Glu Ser Ala Ala  
                   35                  40                  45  
 Ser Ala Val Glu Glu Ala Lys Asp Gln Val Lys Asp Ala Ala Ala Asp  
                   50                  55                  60  
 Ala Lys Ala Ser Ala Glu Glu Ala Val Thr Glu Ala Lys Glu Ala Val  
                   65                  70                  75                  80

Thr Glu Ala Ala Lys Asp Thr Leu Asn Lys Ala Ala Asp Ala Thr Gln  
85 90 95

Glu Ala Ala Asp Lys Met Lys Asp Ala Ala Lys  
100 105

<210> 819  
<211> 324  
<212> DNA  
<213> Neisseria meningitidis

<400> 819  
atgaaaaaat tattgattgc cgcaatgatg gcggtgcct tggcagcttg ttcgcaagaa 60  
gccaaacagg aggttaagga agcgggtcaa gccgttgagt ccgatgttaa agacactgcg 120  
gcttctgccg ccgagctctgc cgcttctgcc gtcgaagaag cgaaagacca agtcaaagat 180  
gctgcggctg atgcaaaggc aagtgccgag gaagctgtaa ctgaagccaa agaagctgta 240  
actgaagcag ctaaagatac tttgaacaaa gctgccgacg cgactcagga agcggcagac 300  
aaaatgaaag atgccgccaa ataa 324

<210> 820  
<211> 107  
<212> PRT  
<213> Neisseria meningitidis

<400> 820  
Met Lys Lys Leu Leu Ile Ala Ala Met Met Ala Ala Ala Leu Ala Ala  
1 5 10 15

Cys Ser Gln Glu Ala Lys Gln Glu Val Lys Glu Ala Val Gln Ala Val  
20 25 30

Glu Ser Asp Val Lys Asp Thr Ala Ala Ser Ala Ala Glu Ser Ala Ala  
35 40 45

Ser Ala Val Glu Glu Ala Lys Asp Gln Val Lys Asp Ala Ala Ala Asp  
50 55 60

Ala Lys Ala Ser Ala Glu Glu Ala Val Thr Glu Ala Lys Glu Ala Val  
65 70 75 80

Thr Glu Ala Ala Lys Asp Thr Leu Asn Lys Ala Ala Asp Ala Thr Gln  
85 90 95

Glu Ala Ala Asp Lys Met Lys Asp Ala Ala Lys  
100 105

<210> 821  
<211> 591  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 821

atggctgccg tatcgggcgg cggcgcggtc ttcttgataa tgcttccaca tattgcccgc 60



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gttcagcgtc agccgccagc gttcgcccaa gcgtcgggag aaatcggcat tgaagccgcc 120
ggcgaaattg tatcggtctc cgccaagag gttttgcccg acaaacggca cggtgccgaa 180
cgagcgcgtt accgaacggt tttgatggcc gaacgacagg cgcaggttct gttcgctgaa 240
atctttgtta tccaataat gcacgccgcg gctgatgccg ccgtagagga aatgatgcc 300
gcccgcattg atttcgcgcg acacgcccaa gccgtagcgc aaaccgtgtg ccttttgcg 360
caggctgtcg gcggttttcg tccagcttct gcccgc aaat tcaatcgttt tttcggacga 420
agcgttgttt atagcggatt aacaaaaatc aggacaaggc ggcgggccgc aggcagtacg 480
gatggtacgg aaccggttcg cccggtgctt ggacgcctta gggaaccgtt ccctttgagc 540
cggggcgggg caaccggtac cggtttttgc tcatccgcc a tattgtgttg a 591

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<210> 822  
 <211> 196  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 822  
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   1                  5                  10                  15  
  
 His Ile Ala Arg Val Gln Arg Gln Pro Pro Ala Phe Ala Gln Ala Ser  
           20                  25                  30  
  
 Gly Glu Ile Gly Ile Glu Ala Ala Gly Glu Ile Val Ser Ala Ala Ala  
           35                  40                  45  
  
 Gln Glu Val Leu Pro Asp Lys Arg His Gly Ala Glu Arg Ala Arg Tyr  
           50                  55                  60  
  
 Arg Thr Val Leu Met Ala Glu Arg Gln Ala Gln Val Leu Phe Ala Glu  
   65                  70                  75                  80  
  
 Ile Phe Val Ile Pro Ile Met His Ala Ala Ala Asp Ala Ala Val Glu  
                   85                  90                  95  
  
 Glu Met Met Pro Ala Arg Ile Asp Phe Ala Arg His Ala Gln Ala Val  
           100                  105                  110  
  
 Ala Gln Thr Val Cys Leu Leu Arg Gln Ala Val Gly Gly Phe Arg Pro  
           115                  120                  125  
  
 Ala Ser Ala Arg Lys Phe Asn Arg Phe Phe Gly Arg Ser Val Val Tyr  
   130                  135                  140  
  
 Ser Gly Leu Thr Lys Ile Arg Thr Arg Arg Arg Ala Ala Gly Ser Thr  
   145                  150                  155                  160  
  
 Asp Gly Thr Glu Pro Val Arg Pro Val Leu Gly Arg Leu Arg Glu Pro  
           165                  170                  175  
  
 Phe Pro Leu Ser Arg Gly Gly Ala Thr Arg Thr Gly Phe Cys Ser Ser  
           180                  185                  190  
  
 Ala Ile Leu Cys  
   195

<210> 823  
 <211> 482  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 823  
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 taagaggttt tgctcgacaa acggcacgat gccgaacgag cgcgttaccg aacggttttt 120  
 atagccgaac gacaggcgca ggctctgttc gctgaaatct ttgttatccc aataatgcac 180  
 gccgccgccg ctgatgccgc cgtagaggaa atgatgcctg cccgcattga tttcgcgcga 240  
 cacgcctaag ccctagcgca aaccgtgtgc cttttgcggc aggctgtcgg cggttttcgt 300  
 ccagcttctg cccgcaaatt caatcgttt ttcggacgaa gcgttggtta tagcggatta 360  
 acaaaaatca ggacaaggca acgaagccgc agacagtaca aatagtagcg aaccgattca 420  
 cttggtgctt cagcacctta gagaatcggt ctcttttttg ttcacccgct atattgtgtt 480  
 ga 482

<210> 824  
 <211> 160  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 824  
 Ala Gln Ala Leu Gly Glu Ile Gly Ile Glu Ala Ala Asp Glu Ile Val  
 1 5 10 15  
 Ser Ala Ala Ala Xaa Glu Val Leu Leu Asp Lys Arg His Asp Ala Glu  
 20 25 30  
 Arg Ala Arg Tyr Arg Thr Val Phe Ile Ala Glu Arg Gln Ala Gln Ala  
 35 40 45  
 Leu Phe Ala Glu Ile Phe Val Ile Pro Ile Met His Ala Ala Ala Ala  
 50 55 60  
 Asp Ala Ala Val Glu Glu Met Met Pro Ala Arg Ile Asp Phe Ala Arg  
 65 70 75 80  
 His Ala Xaa Ala Leu Ala Gln Thr Val Cys Leu Leu Arg Gln Ala Val  
 85 90 95  
 Gly Gly Phe Arg Pro Ala Ser Ala Arg Lys Phe Asn Arg Phe Phe Gly  
 100 105 110  
 Arg Ser Val Val Tyr Ser Gly Leu Thr Lys Ile Arg Thr Arg Gln Arg  
 115 120 125  
 Ser Ala Asp Ser Thr Asn Ser Thr Glu Pro Ile His Leu Val Leu Gln  
 130 135 140  
 His Leu Arg Glu Ser Arg Ser Leu Phe Cys Ser Ser Ala Ile Leu Cys  
 145 150 155 160

<210> 825  
<211> 583  
<212> DNA  
<213> Neisseria meningitidis

<400> 825  
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gttcagcgtc agccgccagt tcgctcaagc gtcgggagaa atcggcattg aagccgccga 120  
cgaaattgta tcggttgccg cctaagaggt tttgctcgat aaacggcacg atgccgaatg 180  
agcgcgttac tgaacggttt ttatagccga gcgacaggcg caggctctgt tcgctgaaat 240  
ctttgttata ctaatagtgc acgccgccgc cgctgatgtc tccgtagagg aaatgatgcc 300  
cgcccgcatt gatttcgcgc gacacgcca agccgtagcg caaacctgtg gccttttgcg 360  
gcaggctgtc ggcgggtttc gtccagcttc tgccctgcaa ttcaatcgtt ttttcggacg 420  
aagcgttggt tatagcggat taacaaaaat caggacaagg cgacgaagcg cagacagtac 480  
agatagtacg gaaccgattc acttggtgct tcagcacctt agagaatcgt ctctttgagc 540  
taaggcgagg caacgccgta ctggtttttg ttcattccact ata 583

<210> 826  
<211> 191  
<212> PRT  
<213> Neisseria meningitidis

<400> 826  
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20 25 30  
Gly Glu Ile Gly Ile Glu Ala Ala Asp Glu Ile Val Ser Ala Ala Ala  
35 40 45  
Glu Val Leu Leu Asp Lys Arg His Asp Ala Glu Ala Arg Tyr Thr Val  
50 55 60  
Phe Ile Ala Glu Arg Gln Ala Gln Ala Leu Phe Ala Glu Ile Phe Val  
65 70 75 80  
Ile Leu Ile Val His Ala Ala Ala Ala Asp Val Ser Val Glu Glu Met  
85 90 95  
Met Pro Ala Arg Ile Asp Phe Ala Arg His Ala Gln Ala Val Ala Gln  
100 105 110  
Thr Val Cys Leu Leu Arg Gln Ala Val Gly Gly Phe Arg Pro Ala Ser  
115 120 125  
Ala Cys Lys Phe Asn Arg Phe Phe Gly Arg Ser Val Val Tyr Ser Gly  
130 135 140  
Leu Thr Lys Ile Arg Thr Arg Arg Arg Ser Ala Asp Ser Thr Asp Ser  
145 150 155 160  
Thr Glu Pro Ile His Leu Val Leu Gln His Leu Arg Glu Ser Ser Leu  
165 170 175

Ala Lys Ala Arg Gln Arg Arg Thr Gly Phe Cys Ser Ser Thr Ile  
 180 185 190

<210> 827  
 <211> 1173  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 827  
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 ttaacttttg tcggcttcgg cgtcagcac gtttcccatc cgggcgcga ctacatcgtc 120  
 caagtgggcg acgaaaaaat cagcgagcac tcaatcaaca acgcatgca gaacgagcag 180  
 gcggacggcg gcagcccttg gcgcgacgcg gtgttccaat ccctgctgca acgcgcctac 240  
 ctgaaacagg gcgcgaagct gatgggcatt tcggtttctt ccgaacaaat caagcagatg 300  
 attgtggacg atcccaattt ccacgacgca aacggcaaat tcagtcacgc gcttttgagt 360  
 caatacctgt cgcaacgcca tatgtctgaa gaccagtttg tcgaagaaat ccgcgatcag 420  
 tttgccttgc agaatttggg aagcctcgtc caaaacggcg tattgggtcgg cgacgcgcag 480  
 gcggaacagc tgatcaggct gacgcaggct aaccgcacca tccgttcgca cactttcaac 540  
 cccgacgagt tcacgcccc agtcaaagcg tctgaagccg atttgcagaa attttataat 600  
 gcgaacaaaa aagactatct gctgccgcag gcggtcaaat tggaatatgt cgccttgaat 660  
 ctgaaggatt ttgcagacaa gcagaccgtc agtgaaacgg aagtgaaaaa tgcgtttgaa 720  
 gagcgcgtgg cgcgtttgcc ggcacatgaa gccaaacctt ctttcgagca ggaaaaagcc 780  
 gccgtcgaaa acgaattgaa aatgaaaaag gcggttgccg acttcaacaa ggcaaaaagaa 840  
 aagctgggcg acgatgcgtt caatcatccc tcctcgcttg ccgaagccgc caaaaacagc 900  
 ggtttgaaaag tggaaaccca agaaacttgg ctgagcaggc aggacgcaca aatgtccggc 960  
 atgcccgaaa acctaataca tgccgtattc agcgacgacg tattgaagaa aaacacaaat 1020  
 tccgaagtgc tgaccatcaa cagcgaaacc gcgtgggtcg tccgcgcca agaagtccgc 1080  
 gaagaaaaaa acctactgtt tgaagaagcc aaagatgcgg tgcgtcaggc ctatatccgt 1140  
 accgaagccg ccaaactttt gaaaacaatg taa 1173

<210> 828  
 <211> 390  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 828  
 Met Phe His Ser Ile Glu Lys Tyr Arg Thr Pro Ala Gln Val Leu Leu  
 1 5 10 15  
 Gly Leu Ile Ala Leu Thr Phe Val Gly Phe Gly Val Ser Thr Val Ser  
 20 25 30  
 His Pro Gly Ala Asp Tyr Ile Val Gln Val Gly Asp Glu Lys Ile Ser  
 35 40 45  
 Glu His Ser Ile Asn Asn Ala Met Gln Asn Glu Gln Ala Asp Gly Gly  
 50 55 60  
 Ser Pro Trp Arg Asp Ala Val Phe Gln Ser Leu Leu Gln Arg Ala Tyr  
 65 70 75 80  
 Leu Lys Gln Gly Ala Lys Leu Met Gly Ile Ser Val Ser Ser Glu Gln  
 85 90 95

Ile	Lys	Gln	Met	Ile	Val	Asp	Asp	Pro	Asn	Phe	His	Asp	Ala	Asn	Gly		
100								105				110					
Lys	Phe	Ser	His	Ala	Leu	Leu	Ser	Gln	Tyr	Leu	Ser	Gln	Arg	His	Met		
115								120				125					
Ser	Glu	Asp	Gln	Phe	Val	Glu	Glu	Ile	Arg	Asp	Gln	Phe	Ala	Leu	Gln		
130								135				140					
Asn	Leu	Val	Ser	Leu	Val	Gln	Asn	Gly	Val	Leu	Val	Gly	Asp	Ala	Gln		
145												155					
Ala	Glu	Gln	Leu	Ile	Arg	Leu	Thr	Gln	Val	Asn	Arg	Thr	Ile	Arg	Ser		
				165								175					
His	Thr	Phe	Asn	Pro	Asp	Glu	Phe	Ile	Ala	Gln	Val	Lys	Ala	Ser	Glu		
				180				185				190					
Ala	Asp	Leu	Gln	Lys	Phe	Tyr	Asn	Ala	Asn	Lys	Lys	Asp	Tyr	Leu	Leu		
195								200				205					
Pro	Gln	Ala	Val	Lys	Leu	Glu	Tyr	Val	Ala	Leu	Asn	Leu	Lys	Asp	Phe		
210								215				220					
Ala	Asp	Lys	Gln	Thr	Val	Ser	Glu	Thr	Glu	Val	Lys	Asn	Ala	Phe	Glu		
225				230								235					
Glu	Arg	Val	Ala	Arg	Leu	Pro	Ala	His	Glu	Ala	Lys	Pro	Ser	Phe	Glu		
				245				250				255					
Gln	Glu	Lys	Ala	Ala	Val	Glu	Asn	Glu	Leu	Lys	Met	Lys	Lys	Ala	Val		
				260				265				270					
Ala	Asp	Phe	Asn	Lys	Ala	Lys	Glu	Lys	Leu	Gly	Asp	Asp	Ala	Phe	Asn		
275								280				285					
His	Pro	Ser	Ser	Leu	Ala	Glu	Ala	Ala	Lys	Asn	Ser	Gly	Leu	Lys	Val		
290								295				300					
Glu	Thr	Gln	Glu	Thr	Trp	Leu	Ser	Arg	Gln	Asp	Ala	Gln	Met	Ser	Gly		
305				310								315					
Met	Pro	Glu	Asn	Leu	Ile	Asn	Ala	Val	Phe	Ser	Asp	Asp	Val	Leu	Lys		
				325								335					
Lys	Lys	His	Asn	Ser	Glu	Val	Leu	Thr	Ile	Asn	Ser	Glu	Thr	Ala	Trp		
				340				345				350					
Val	Val	Arg	Ala	Lys	Glu	Val	Arg	Glu	Glu	Lys	Asn	Leu	Leu	Phe	Glu		
355								360				365					
Glu	Ala	Lys	Asp	Ala	Val	Arg	Gln	Ala	Tyr	Ile	Arg	Thr	Glu	Ala	Ala		
370								375				380					
Lys	Leu	Leu	Lys	Thr	Met												
385				390													

<210> 829  
 <211> 1156  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 829  
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 caagtgggag acgaaaaaat cagcgaccac tccatcaaca acgcatata gaacgaacag 180  
 gcggacggcg gcggcccttc gccgacgcg tgttccaatc cctgctgcaa cgcgctacc 240  
 tgaaacaggg cgcgaagctg atgggcattt cggtttcttc cgaacaaatc aagcaaatta 300  
 tcgtggacga tcccaatttc cagcagcga accgcaaatt cgaccacgcg cttttaaacc 360  
 gctaccttc ccaacgccat atgtctgaag accagtttgt cgaagaaatc cgcgatcagt 420  
 ttgccttgca gaatttggtg aacctcgctc aaaacggcgt attggtcggc gacgcgcagg 480  
 cggacagct gatcaggctg acacagggtc accgcacat ccgttcgcac actttcaacc 540  
 ccgacgagtt catcgcccaa gtcaaagtgt ctgaagccga tttgcagaaa ttttataatg 600  
 cgaacaaaaa agactatctg ctgccgcagg cgggtcaaatt ggaatatgtc gccttgaatc 660  
 tgaaggattt tgcagacaag cagaccgtca gtgaaacgga agtgaaaaat gcatttgaag 720  
 agcgcgtggc gcgtttgccg gcaaatgaag ccaaaccctc tttcgagcag gaaaaagccg 780  
 ccgtcgaaaa cgaattgaaa atgaaaaagg cggttgccga cttcaacaag gcaaaagaaa 840  
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 gcccgaaaac ctgatcaatg ccgtattcag cgacgcagta ttgaagaaaa aacacaattc 1020  
 cgaagtgctg accatcaaca gcgaaaccgc gtgggtcgtc cgcgccaaag aagtcgcgca 1080  
 agagaaaacc ctgccgtttg ccgaagccaa agacgcggtg cgtcaggctt atatccgtac 1140  
 cgaagccgcc aaactt 1156

<210> 830  
 <211> 386  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 830  
 Met Phe His Ser Ile Glu Lys Tyr Arg Thr Pro Ala Gln Val Leu Leu  
 1 5 10 15  
 Gly Leu Ile Ala Leu Thr Phe Val Gly Phe Gly Val Ser Thr Val Ser  
 20 25 30  
 His Pro Gly Ala Asp Tyr Ile Val Gln Val Gly Asp Glu Lys Ile Ser  
 35 40 45  
 Asp His Ser Ile Asn Asn Ala Ile Gln Asn Glu Gln Ala Asp Gly Gly  
 50 55 60  
 Gly Pro Ser Pro Asp Ala Val Phe Gln Ser Leu Leu Gln Arg Ala Tyr  
 65 70 75 80  
 Leu Lys Gln Gly Ala Lys Leu Met Gly Ile Ser Val Ser Ser Glu Gln  
 85 90 95  
 Ile Lys Gln Ile Ile Val Asp Asp Pro Asn Phe His Asp Ala Asn Gly  
 100 105 110

Lys Phe Asp His Ala Leu Leu Asn Arg Tyr Leu Ser Gln Arg His Met  
 115 120 125  
 Ser Glu Asp Gln Phe Val Glu Glu Ile Arg Asp Gln Phe Ala Leu Gln  
 130 135 140  
 Asn Leu Val Asn Leu Val Gln Asn Gly Val Leu Val Gly Asp Ala Gln  
 145 150 155 160  
 Ala Glu Gln Leu Ile Arg Leu Thr Gln Val Asn Arg Thr Ile Arg Ser  
 165 170 175  
 His Thr Phe Asn Pro Asp Glu Phe Ile Ala Gln Val Lys Val Ser Glu  
 180 185 190  
 Ala Asp Leu Gln Lys Phe Tyr Asn Ala Asn Lys Lys Asp Tyr Leu Leu  
 195 200 205  
 Pro Gln Ala Val Lys Leu Glu Tyr Val Ala Leu Asn Leu Lys Asp Phe  
 210 215 220  
 Ala Asp Lys Gln Thr Val Ser Glu Thr Glu Val Lys Asn Ala Phe Glu  
 225 230 235 240  
 Glu Arg Val Ala Arg Leu Pro Ala Asn Glu Ala Lys Pro Ser Phe Glu  
 245 250 255  
 Gln Glu Lys Ala Ala Val Glu Asn Glu Leu Lys Met Lys Lys Ala Val  
 260 265 270  
 Ala Asp Phe Asn Lys Ala Lys Glu Lys Leu Gly Asp Asp Ala Val Asn  
 275 280 285  
 His Pro Ser Ser Leu Ala Glu Ala Ala Lys Asn Ser Gly Leu Lys Val  
 290 295 300  
 Glu Thr Gln Glu Thr Trp Leu Ser Arg Gln Asp Ala Gln Met Ser Gly  
 305 310 315 320  
 Met Pro Glu Asn Leu Ile Asn Ala Val Phe Ser Asp Asp Val Leu Lys  
 325 330 335  
 Lys Lys His Asn Ser Glu Val Leu Thr Ile Asn Ser Glu Thr Ala Trp  
 340 345 350  
 Val Val Arg Ala Lys Glu Val Arg Glu Glu Lys Thr Leu Pro Phe Ala  
 355 360 365  
 Glu Ala Lys Asp Ala Val Arg Gln Ala Tyr Ile Arg Thr Glu Ala Ala  
 370 375 380  
 Lys Leu  
 385

<210> 831  
 <211> 1158

<212> DNA

<213> *Neisseria meningitidis*

<400> 831

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caagtgggcg acgaaaaaat cagcgaccac tccatcaaca acgccataca gaacgaacag 180
gcggaacggc gcggcccttc gcgcgacgcg gtgttccaat ccctgctaca acgcgcctac 240
ctgaaacagg gcgcgaagct gatgggcatt tcggtttctt ccgaacaaat caagcagatt 300
atcgtggacg atcccaattt ccacgacgca aacggcaaat tcgaccacgc gcttttaaac 360
cgctaccttt cccaacgtca tatgtctgaa gaccagtttg tcgaagaaat ccgcgatcag 420
tttgccttgc agaatttggt aaacctcgtc caaaacggcg tattggtcgg cgacgcgcag 480
gcggaacagc tgatcagggt gacgcaggtc aaccgcacca tccgttcgca cactttcaac 540
cccgcgaat tcatcgcccc agtcaaagtg tctgaagccg atttgcagaa gttttataac 600
gcaaacaaaa aagactacct gcttcccaaa gcggtcaaat tggaatatgt cgccttgaat 660
ctgaaagact ttgcagacaa acagaccgtc agcgaacag aagtgaaaaa tgcgtttgaa 720
gagcgcgtgg cgcgtttgcc ggcaaatgaa gccaaacctt ctttcgagca ggaaaagcc 780
gccgtcgaaa acgaattgaa aatgaaaaag gcggttgccg acttcaataa ggcaaaagaa 840
aagctgggcg atgacgcgtt caaccatcct tcctcgcttg ccgaagccgc caaaaacagc 900
ggtttgaaag tcgaaaccca agaaacttgg ctgagcaggc aggatgcgca aatgtccggt 960
atgcccgaaa acctgatcaa tgccgtattc agcgacgacg tattgaagaa aaaacacaat 1020
tccgaagtgc tgaccatcaa cagcgaaacc gcgtgggtcg tccgcgccaa agaagtcgc 1080
gaagagaaaa ccctgccgtt tgccgaagcc aaagacgcgg tacgtcaggc ttatatccgt 1140
accgaagccg ccaaactt                                     1158
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<210> 832

<211> 386

<212> PRT

<213> *Neisseria meningitidis*

<400> 832

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Met Phe His Ser Ile Glu Lys Tyr Arg Thr Pro Ala Gln Val Leu Leu
  1                      5                      10                      15

Gly Leu Ile Ala Leu Thr Phe Val Gly Phe Gly Val Ser Thr Val Ser
                20                      25                      30

His Pro Gly Ala Asp Tyr Ile Val Gln Val Gly Asp Glu Lys Ile Ser
                35                      40                      45

Asp His Ser Ile Asn Asn Ala Ile Gln Asn Glu Gln Ala Asp Gly Gly
  50                      55                      60

Gly Pro Ser Arg Asp Ala Val Phe Gln Ser Leu Leu Gln Arg Ala Tyr
  65                      70                      75                      80

Leu Lys Gln Gly Ala Lys Leu Met Gly Ile Ser Val Ser Ser Glu Gln
                85                      90                      95

Ile Lys Gln Ile Ile Val Asp Asp Pro Asn Phe His Asp Ala Asn Gly
                100                      105                      110

Lys Phe Asp His Ala Leu Leu Asn Arg Tyr Leu Ser Gln Arg His Met
  115                      120                      125
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Ser Glu Asp Gln Phe Val Glu Glu Ile Arg Asp Gln Phe Ala Leu Gln  
 130 135 140  
 Asn Leu Val Asn Leu Val Gln Asn Gly Val Leu Val Gly Asp Ala Gln  
 145 150 155 160  
 Ala Glu Gln Leu Ile Arg Leu Thr Gln Val Asn Arg Thr Ile Arg Ser  
 165 170 175  
 His Thr Phe Asn Pro Asp Glu Phe Ile Ala Gln Val Lys Val Ser Glu  
 180 185 190  
 Ala Asp Leu Gln Lys Phe Tyr Asn Ala Asn Lys Lys Asp Tyr Leu Leu  
 195 200 205  
 Pro Lys Ala Val Lys Leu Glu Tyr Val Ala Leu Asn Leu Lys Asp Phe  
 210 215 220  
 Ala Asp Lys Gln Thr Val Ser Glu Thr Glu Val Lys Asn Ala Phe Glu  
 225 230 235 240  
 Glu Arg Val Ala Arg Leu Pro Ala Asn Glu Ala Lys Pro Ser Phe Glu  
 245 250 255  
 Gln Glu Lys Ala Ala Val Glu Asn Glu Leu Lys Met Lys Lys Ala Val  
 260 265 270  
 Ala Asp Phe Asn Lys Ala Lys Glu Lys Leu Gly Asp Asp Ala Phe Asn  
 275 280 285  
 His Pro Ser Ser Leu Ala Glu Ala Ala Lys Asn Ser Gly Leu Lys Val  
 290 295 300  
 Glu Thr Gln Glu Thr Trp Leu Ser Arg Gln Asp Ala Gln Met Ser Gly  
 305 310 315 320  
 Met Pro Glu Asn Leu Ile Asn Ala Val Phe Ser Asp Asp Val Leu Lys  
 325 330 335  
 Lys Lys His Asn Ser Glu Val Leu Thr Ile Asn Ser Glu Thr Ala Trp  
 340 345 350  
 Val Val Arg Ala Lys Glu Val Arg Glu Glu Lys Thr Leu Pro Phe Ala  
 355 360 365  
 Glu Ala Lys Asp Ala Val Arg Gln Ala Tyr Ile Arg Thr Glu Ala Ala  
 370 375 380  
 Lys Leu  
 385

<210> 833

<211> 1539

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 833

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ttaacttttg tcggcttcgg cgtcagcacg gtttcccatc cgggcgcga ctacatcgtc 120
caagtgggcg acgaaaaaat cagcgagcac tcaatcaaca acgccatgca gaacgagcag 180
gcggacggcg gcagcccttg gcgcgacgcg gtgttccaat ccctgctgca acgcgcctac 240
ctgaaacagg gcgcgaagct gatgggcatt tcggtttctt ccgaacaaat caagcagatg 300
attgtggacg atcccaatct ccacgacgca aacggcaaat tcagtcacgc gcttttgagt 360
caatacctgt cgcaacgcca tatgtctgaa gaccagtttg tcgaagaaat ccgcgatcag 420
tttgcccttg agaatttggg aagcctcgtc caaaacggcg tattggtcgg cgacgcgcag 480
gcggaacagc tgatcaggct gacgcaggtc aaccgcacca tccgttcgca cactttcaac 540
```

```
cccgacgagt tcacgcccc agtcaaagcg tctgaagccg atttgcagaa attttataat 600
gcgaacaaaa aagactatct gctgccgcag gcggtcaaat tggaatatgt cgccttgaat 660
ctgaaggatt ttgcagacaa gcagaccgtc agtgaaacgg aagtgaaaaa tgcgtttgaa 720
gagcgcggtg cgcgtttgcc ggcacatgaa gccaaacctt ctttcgagca ggaaaaagcc 780
gccgctgaaa acgaattgaa aatgaaaaag gcggttgccg acttcaacaa ggcaaaagaa 840
aagctgggcg acgatgcgtt caatcatccc tcctcgcttg ccgaagccgc caaaaacagc 900
ggtttgaaaag tggaacccca agaaacttgg ctgagcaggc aggacgcaca aatgtccggc 960
atgcccgaaa acctaataca tgccgtattc agcgacgacg tattgaagaa aaaacacaat 1020
tccgaagtgc tgaccatcaa cagcgaaacc gcgtgggtcg tccgcgccaa agaagtccgc 1080
gaagaaaaaa acctactgtt tgaagaagcc aaagatgcgg tgcgtcaggc ctatatccgt 1140
accgaagccg ccaaacttgc cgaaaacaag gcaaaagaag tgcttaccba actgaacggc 1200
ggcaaggcag ttgacgtgaa atggtcggaa gtgtccgttt tgggcgcgca gcaggcaagg 1260
cagtccatgc cgcccgaggc ttatgcggaa ctgctgaaag caaaaccggc aaacggcaaa 1320
cccgcctatg tcagactgac cggctctgccg gcacccgtga ttgtcgaggc gcaggcagtc 1380
acgcctccgg aggatattgc cgcacagctt cctcctgcga aacaggcttt ggcgcaacag 1440
cagtctgcca atactttcga cctgctgatc cgctatttca acggaaaaat caaacagact 1500
aaaggagcac aatcggttga caacggcgat ggtcagtaa 1539
```

<210> 834

<211> 512

<212> PRT

<213> Neisseria gonorrhoeae

<400> 834

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Met Phe His Ser Ile Glu Lys Tyr Arg Thr Pro Ala Gln Val Leu Leu
  1             5             10             15
```

```
Gly Leu Ile Ala Leu Thr Phe Val Gly Phe Gly Val Ser Thr Val Ser
      20             25             30
```

```
His Pro Gly Ala Asp Tyr Ile Val Gln Val Gly Asp Glu Lys Ile Ser
      35             40             45
```

```
Glu His Ser Ile Asn Asn Ala Met Gln Asn Glu Gln Ala Asp Gly Gly
      50             55             60
```

```
Ser Pro Trp Arg Asp Ala Val Phe Gln Ser Leu Leu Gln Arg Ala Tyr
      65             70             75             80
```

```
Leu Lys Gln Gly Ala Lys Leu Met Gly Ile Ser Val Ser Ser Glu Gln
      85             90             95
```

```
Ile Lys Gln Met Ile Val Asp Asp Pro Asn Phe His Asp Ala Asn Gly
      100            105            110
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Lys	Phe	Ser	His	Ala	Leu	Leu	Ser	Gln	Tyr	Leu	Ser	Gln	Arg	His	Met	115	120	125	
Ser	Glu	Asp	Gln	Phe	Val	Glu	Glu	Ile	Arg	Asp	Gln	Phe	Ala	Leu	Gln	130	135	140	
Asn	Leu	Val	Ser	Leu	Val	Gln	Asn	Gly	Val	Leu	Val	Gly	Asp	Ala	Gln	145	150	155	160
Ala	Glu	Gln	Leu	Ile	Arg	Leu	Thr	Gln	Val	Asn	Arg	Thr	Ile	Arg	Ser	165	170	175	
His	Thr	Phe	Asn	Pro	Asp	Glu	Phe	Ile	Ala	Gln	Val	Lys	Ala	Ser	Glu	180	185	190	
Ala	Asp	Leu	Gln	Lys	Phe	Tyr	Asn	Ala	Asn	Lys	Lys	Asp	Tyr	Leu	Leu	195	200	205	
Pro	Gln	Ala	Val	Lys	Leu	Glu	Tyr	Val	Ala	Leu	Asn	Leu	Lys	Asp	Phe	210	215	220	
Ala	Asp	Lys	Gln	Thr	Val	Ser	Glu	Thr	Glu	Val	Lys	Asn	Ala	Phe	Glu	225	230	235	240
Glu	Arg	Val	Ala	Arg	Leu	Pro	Ala	His	Glu	Ala	Lys	Pro	Ser	Phe	Glu	245	250	255	
Gln	Glu	Lys	Ala	Ala	Val	Glu	Asn	Glu	Leu	Lys	Met	Lys	Lys	Ala	Val	260	265	270	
Ala	Asp	Phe	Asn	Lys	Ala	Lys	Glu	Lys	Leu	Gly	Asp	Asp	Ala	Phe	Asn	275	280	285	
His	Pro	Ser	Ser	Leu	Ala	Glu	Ala	Ala	Lys	Asn	Ser	Gly	Leu	Lys	Val	290	295	300	
Glu	Thr	Gln	Glu	Thr	Trp	Leu	Ser	Arg	Gln	Asp	Ala	Gln	Met	Ser	Gly	305	310	315	320
Met	Pro	Glu	Asn	Leu	Ile	Asn	Ala	Val	Phe	Ser	Asp	Asp	Val	Leu	Lys	325	330	335	
Lys	Lys	His	Asn	Ser	Glu	Val	Leu	Thr	Ile	Asn	Ser	Glu	Thr	Ala	Trp	340	345	350	
Val	Val	Arg	Ala	Lys	Glu	Val	Arg	Glu	Glu	Lys	Asn	Leu	Leu	Phe	Glu	355	360	365	
Glu	Ala	Lys	Asp	Ala	Val	Arg	Gln	Ala	Tyr	Ile	Arg	Thr	Glu	Ala	Ala	370	375	380	
Lys	Leu	Ala	Glu	Asn	Lys	Ala	Lys	Glu	Val	Leu	Thr	Gln	Leu	Asn	Gly	385	390	395	400
Gly	Lys	Ala	Val	Asp	Val	Lys	Trp	Ser	Glu	Val	Ser	Val	Leu	Gly	Ala	405	410	415	

Gln Gln Ala Arg Gln Ser Met Pro Pro Glu Ala Tyr Ala Glu Leu Leu  
                   420                                  425                                  430  
 Lys Ala Lys Pro Ala Asn Gly Lys Pro Ala Tyr Val Arg Leu Thr Gly  
                   435                                  440                                  445  
 Leu Pro Ala Pro Val Ile Val Glu Ala Gln Ala Val Thr Pro Pro Glu  
                   450                                  455                                  460  
 Asp Ile Ala Ala Gln Leu Pro Pro Ala Lys Gln Ala Leu Ala Gln Gln  
 465                                  470                                  475                                  480  
 Gln Ser Ala Asn Thr Phe Asp Leu Leu Ile Arg Tyr Phe Asn Gly Lys  
                                   485                                  490                                  495  
 Ile Lys Gln Thr Lys Gly Ala Gln Ser Val Asp Asn Gly Asp Gly Gln  
                   500                                  505                                  510

<210> 835  
 <211> 1539  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 835  
 atgttccatt ccatacgaata atacagaacg cccgcccag tccttttggg cctgattgca 60  
 ttaaccttcg tcggcttcgg ggtcagcacg gtatcccatc cgggtgccga ctacatcgtc 120  
 caagtgggag acgaaaaaat cagcgaccac tccatcaaca acgccatata gaacgaacag 180  
 gcggaacggc gcggcccttc gcgcgacgag gtgttccaat ccctgctgca acgcgcctac 240  
 ctgaaacagg gcgcgaagct gatgggcatt tcggtttctt ccgaacaaat caagcaaatt 300  
 atcgtggacg atcccaattt ccacgacgca aacggcaaat tcgaccacgc gcttttaaac 360  
 cgctaccttt cccaacgccca tatgtctgaa gaccagtttg tcgaagaaat ccgcgatcag 420  
 tttgccttgc agaatttggg aaacctcgtc caaaacggcg tattggtcgg cgacgcgcag 480  
 gcggaacagc tgatcaggct gacacaggct aaccgcacca tccgttcgca cactttcaac 540  
 cccgacgagt tcatacgccta agtcaaagt tctgaagccg atttgcagaa attttataat 600  
 gcgaacaaaa aagactatct gctgccgcag gcggtcaaat tggaatatgt cgccttgaat 660  
 ctgaaggatt ttgcagacaa gcagaccgtc agtgaaacgg aagtgaacaa tgcatattga 720  
 gagcgcgtgg cgcgtttgac ggcaaatgaa gccaaacctt ctttcgagca ggaaaaagcc 780  
 gccgtcgaac acgaattgaa aatgaaaaag gcggttgccg acttcaacaa ggcaaaagaa 840  
 aaattgggag acgatgcgtt caaccatcct tcctcgcttg ccgaagccgc caaaaacagc 900  
 ggtttgaaag tcgaaaccca agaaacttgg ctgagtaggc aggacgcgca aatgtccggt 960  
 atgcccgaac acctgatcaa tgccgtattc agcgacgacg tattgaagaa aaaacacaat 1020  
 tccgaagtgc tgaccatcaa cagcgaaacc gcgtgggtcg tccgcgcca agaaagtccgc 1080  
 gaagagaaaa ccctgccgtt tgccgaagcc aaagacgcgg tacgtcaggc ttatatccgt 1140  
 accgaagccg ccaaaccttg cgaaaacaag gcaaaagacg tgcttaccca actgaacggc 1200  
 ggcaaggctg ttgacgtgaa atggtcgga gtgtccgttt tgggcgcaca gcaggcaagg 1260  
 cagtccatgc cgcgcaggc ttatgcggaa ctgctgaaag caaaaccggc aaacggcaaa 1320  
 cccgcctacg tcaggctgat cgggtctgcc gcacccgtga ttgtcgaagt acaggctgta 1380  
 accccgcggg atgatatcgc cgcacagctt ccgcttgcaa aacaggcttt ggcgcaacag 1440  
  
 cagtctgcca atactttcga cttgttgata cgttatttca acggcaaaat caaacagacc 1500  
 aaaggagcgc aatcggtcga caacggcgac ggtcagtaa 1539

<210> 836  
 <211> 512  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 836  
 Met Phe His Ser Ile Glu Lys Tyr Arg Thr Pro Ala Gln Val Leu Leu  
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 Gly Leu Ile Ala Leu Thr Phe Val Gly Phe Gly Val Ser Thr Val Ser  
 20 25 30  
 His Pro Gly Ala Asp Tyr Ile Val Gln Val Gly Asp Glu Lys Ile Ser  
 35 40 45  
 Asp His Ser Ile Asn Asn Ala Ile Gln Asn Glu Gln Ala Asp Gly Gly  
 50 55 60  
 Gly Pro Ser Arg Asp Ala Val Phe Gln Ser Leu Leu Gln Arg Ala Tyr  
 65 70 75 80  
 Leu Lys Gln Gly Ala Lys Leu Met Gly Ile Ser Val Ser Ser Glu Gln  
 85 90 95  
 Ile Lys Gln Ile Ile Val Asp Asp Pro Asn Phe His Asp Ala Asn Gly  
 100 105 110  
 Lys Phe Asp His Ala Leu Leu Asn Arg Tyr Leu Ser Gln Arg His Met  
 115 120 125  
 Ser Glu Asp Gln Phe Val Glu Glu Ile Arg Asp Gln Phe Ala Leu Gln  
 130 135 140  
 Asn Leu Val Asn Leu Val Gln Asn Gly Val Leu Val Gly Asp Ala Gln  
 145 150 155 160  
 Ala Glu Gln Leu Ile Arg Leu Thr Gln Val Asn Arg Thr Ile Arg Ser  
 165 170 175  
 His Thr Phe Asn Pro Asp Glu Phe Ile Ala Gln Val Lys Val Ser Glu  
 180 185 190  
 Ala Asp Leu Gln Lys Phe Tyr Asn Ala Asn Lys Lys Asp Tyr Leu Leu  
 195 200 205  
 Pro Gln Ala Val Lys Leu Glu Tyr Val Ala Leu Asn Leu Lys Asp Phe  
 210 215 220  
 Ala Asp Lys Gln Thr Val Ser Glu Thr Glu Val Lys Asn Ala Phe Glu  
 225 230 235 240  
 Glu Arg Val Ala Arg Leu Pro Ala Asn Glu Ala Lys Pro Ser Phe Glu  
 245 250 255  
 Gln Glu Lys Ala Ala Val Glu Asn Glu Leu Lys Met Lys Lys Ala Val  
 260 265 270

Ala Asp Phe Asn Lys Ala Lys Glu Lys Leu Gly Asp Asp Ala Phe Asn  
 275 280 285  
 His Pro Ser Ser Leu Ala Glu Ala Ala Lys Asn Ser Gly Leu Lys Val  
 290 295 300  
 Glu Thr Gln Glu Thr Trp Leu Ser Arg Gln Asp Ala Gln Met Ser Gly  
 305 310 315 320  
 Met Pro Glu Asn Leu Ile Asn Ala Val Phe Ser Asp Asp Val Leu Lys  
 325 330 335  
 Lys Lys His Asn Ser Glu Val Leu Thr Ile Asn Ser Glu Thr Ala Trp  
 340 345 350  
 Val Val Arg Ala Lys Glu Val Arg Glu Glu Lys Thr Leu Pro Phe Ala  
 355 360 365  
 Glu Ala Lys Asp Ala Val Arg Gln Ala Tyr Ile Arg Thr Glu Ala Ala  
 370 375 380  
 Lys Leu Ala Glu Asn Lys Ala Lys Asp Val Leu Thr Gln Leu Asn Gly  
 385 390 395 400  
 Gly Lys Ala Val Asp Val Lys Trp Ser Glu Val Ser Val Leu Gly Ala  
 405 410 415  
 Gln Gln Ala Arg Gln Ser Met Pro Pro Glu Ala Tyr Ala Glu Leu Leu  
 420 425 430  
 Lys Ala Lys Pro Ala Asn Gly Lys Pro Ala Tyr Val Arg Leu Ile Gly  
 435 440 445  
 Leu Pro Ala Pro Val Ile Val Glu Val Gln Ala Val Thr Pro Pro Asp  
 450 455 460  
 Asp Ile Ala Ala Gln Leu Pro Leu Ala Lys Gln Ala Leu Ala Gln Gln  
 465 470 475 480  
 Gln Ser Ala Asn Thr Phe Asp Leu Leu Ile Arg Tyr Phe Asn Gly Lys  
 485 490 495  
 Ile Lys Gln Thr Lys Gly Ala Gln Ser Val Asp Asn Gly Asp Gly Gln  
 500 505 510

<210> 837  
 <211> 1539  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 837  
 atgttcatt ccacgaaaa atacagaacg cccgccaag tccttttggg cctgattgca 60  
 ttaaccttcg tcggcttcgg ggtcagcacg gtatcccatc cgggtgccga ctacatcgtc 120

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caagtgggcg acgaaaaaat cagcgaccac tccatcaaca acgccataca gaacgaacag 180
gcggacggcg ggggcccttc gcgcgacgcg gtgttccaat cctgctaca acgcgcctac 240
ctgaaacagc gcgcgaagct gatgggcatt tcggtttctt ccgaacaaat caagcagatt 300
atcgtggacg atcccaattt ccacgacgca aacggcaaat tcgaccacgc gcttttaaac 360
cgctaccttt cccaacgtca tatgtctgaa gaccagtttg tcgaagaaat ccgcgatcag 420
tttgcttgac agaatttggg aaacctcgtc caaaacggcg tattggtcgg cgacgcgcag 480
gcggaacagc tgatcaggct gacgcaggct aaccgcacca tccgttcgca cactttcaac 540
cccgcgaat tcatcgccca agtcaaagtg tctgaagccg atttgcagaa gttttataac 600
gcaaacaaaa aagactacct gcttcccaaa gcggtcaaat tggaatatgt cgccttgaat 660
ctgaaagact ttgcagacaa acagaccgtc agcgaacag aagtgaaaaa tgcgtttgaa 720
gagcgcgtgg cgcgttttgc ggcaaatgaa gccaaacctt ctttcgagca ggaaaaagcc 780
gccgtcgaaa acgaattgaa aatgaaaaag gcggttgccg acttcaataa ggcaaaagaa 840
aagctgggcg atgacgcgtt caaccatcct tcctcgcttg ccgaagccgc caaaaacagc 900
ggtttgaaag tcgaaaccca agaaacttgg ctgagcaggc aggatgcgca aatgtccggt 960
atgcccgaaa acctgatcaa tgccgtattc agcgacgacg tattgaagaa aaaacacaat 1020
tccgaagtgc tgaccatcaa cagcgaaacc gcgtgggtcg tccgcgcaa agaagtcgcg 1080
gaagagaaaa cctgcgctt tgccgaagcc aaagacgcgg tacgtcaggc ttatatccgt 1140
accgaagccg ccaaaacttg cgaaaacaag gcaaaagacg tgcttaccga actgaacggc 1200
ggcaaggctg ttgacgtgaa atggtcggaa gtgtccgttt tgggcgcaca gcaggcaagg 1260
cagtccatgc cgcgcgaggc ttatgcggaa ctgctgaaag caaaaccggc aaacggcaaa 1320
ccgcctacg tcaggctgat cggctctgcc gcaccctgta ttgtcgaagt acaggctgta 1380
acccgcgcgg atgatatcgc cgcacagctt ccgcttgcaa aacaggcttt ggcgcaacag 1440
cagtctgcca atactttcga cttgttgata cgttatttca acggcaaaat caaacagacc 1500
aaaggagcgc aatcggtcga caacggcgac ggtcagtaa 1539

```

<210> 838

<211> 512

<212> PRT

<213> Neisseria meningitidis

<400> 838

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Met Phe His Ser Ile Glu Lys Tyr Arg Thr Pro Ala Gln Val Leu Leu
  1                      5                      10                      15

```

```

Gly Leu Ile Ala Leu Thr Phe Val Gly Phe Gly Val Ser Thr Val Ser
                20                      25                      30

```

```

His Pro Gly Ala Asp Tyr Ile Val Gln Val Gly Asp Glu Lys Ile Ser
        35                      40                      45

```

```

Asp His Ser Ile Asn Asn Ala Ile Gln Asn Glu Gln Ala Asp Gly Gly
  50                      55                      60

```

```

Gly Pro Ser Arg Asp Ala Val Phe Gln Ser Leu Leu Gln Arg Ala Tyr
  65                      70                      75                      80

```

```

Leu Lys Gln Gly Ala Lys Leu Met Gly Ile Ser Val Ser Ser Glu Gln
                85                      90                      95

```

```

Ile Lys Gln Ile Ile Val Asp Asp Pro Asn Phe His Asp Ala Asn Gly
  100                      105                      110

```

```

Lys Phe Asp His Ala Leu Leu Asn Arg Tyr Leu Ser Gln Arg His Met
  115                      120                      125

```

```

Ser Glu Asp Gln Phe Val Glu Glu Ile Arg Asp Gln Phe Ala Leu Gln

```

130	135	140
Asn Leu Val Asn Leu Val Gln Asn Gly Val Leu Val Gly Asp Ala Gln 145 150 155 160		
Ala Glu Gln Leu Ile Arg Leu Thr Gln Val Asn Arg Thr Ile Arg Ser 165 170 175		
His Thr Phe Asn Pro Asp Glu Phe Ile Ala Gln Val Lys Val Ser Glu 180 185 190		
Ala Asp Leu Gln Lys Phe Tyr Asn Ala Asn Lys Lys Asp Tyr Leu Leu 195 200 205		
Pro Lys Ala Val Lys Leu Glu Tyr Val Ala Leu Asn Leu Lys Asp Phe 210 215 220		
Ala Asp Lys Gln Thr Val Ser Glu Thr Glu Val Lys Asn Ala Phe Glu 225 230 235 240		
Glu Arg Val Ala Arg Leu Pro Ala Asn Glu Ala Lys Pro Ser Phe Glu 245 250 255		
Gln Glu Lys Ala Ala Val Glu Asn Glu Leu Lys Met Lys Lys Ala Val 260 265 270		
Ala Asp Phe Asn Lys Ala Lys Glu Lys Leu Gly Asp Asp Ala Phe Asn 275 280 285		
His Pro Ser Ser Leu Ala Glu Ala Ala Lys Asn Ser Gly Leu Lys Val 290 295 300		
Glu Thr Gln Glu Thr Trp Leu Ser Arg Gln Asp Ala Gln Met Ser Gly 305 310 315 320		
Met Pro Glu Asn Leu Ile Asn Ala Val Phe Ser Asp Asp Val Leu Lys 325 330 335		
Lys Lys His Asn Ser Glu Val Leu Thr Ile Asn Ser Glu Thr Ala Trp 340 345 350		
Val Val Arg Ala Lys Glu Val Arg Glu Glu Lys Thr Leu Pro Phe Ala 355 360 365		
Glu Ala Lys Asp Ala Val Arg Gln Ala Tyr Ile Arg Thr Glu Ala Ala 370 375 380		
Lys Leu Ala Glu Asn Lys Ala Lys Asp Val Leu Thr Gln Leu Asn Gly 385 390 395 400		
Gly Lys Ala Val Asp Val Lys Trp Ser Glu Val Ser Val Leu Gly Ala 405 410 415		
Gln Gln Ala Arg Gln Ser Met Pro Pro Glu Ala Tyr Ala Glu Leu Leu 420 425 430		
Lys Ala Lys Pro Ala Asn Gly Lys Pro Ala Tyr Val Arg Leu Ile Gly		



435                      440                      445  
 Leu Pro Ala Pro Val Ile Val Glu Val Gln Ala Val Thr Pro Pro Asp  
 450                      455                      460  
 Asp Ile Ala Ala Gln Leu Pro Leu Ala Lys Gln Ala Leu Ala Gln Gln  
 465                      470                      475                      480  
 Gln Ser Ala Asn Thr Phe Asp Leu Leu Ile Arg Tyr Phe Asn Gly Lys  
 485                      490                      495  
 Ile Lys Gln Thr Lys Gly Ala Gln Ser Val Asp Asn Gly Asp Gly Gln  
 500                      505                      510

<210> 839  
 <211> 906  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 839  
 atgtcaaaac gaaaatccat aaaccgtccg tatcaaaaac cggcgggaact gccgccgttg 60  
 caaaataatc cgccatttta ccgtaaaaac cgccgcctga acttttttat cgcggcagac 120  
 ggcggttgcg cgtctccgca aaaatgcagg gcgcgcggtt ttcagacggc atttgccgtt 180  
 caaggccgtg cgggtgtcttt accaaatgcc caaccattcg cccacggaat ccatccaatc 240  
 cttattgccc ccgccgtcc tgctgcccgc gcggtacgcc cacggcgctt gcggattttt 300  
 agctttccac aatcctttgc gttccctttc cgctgaatt tgagcgtcgg catagtcggc 360  
 aaaatccgcc ttatcctgct gttcttttagc ataactttta taatgccacg ccgccccgtc 420  
 ctgcacctgc atcaggttca aatcggtttt gccggcggat acctgcgcca ctgcgcgtg 480  
 atagcggtcg gtttcaaaca cacgtacact gactttccta ccctccgccg ccgcgcgcag 540  
 gttgtcgcgc gaacgtgtac cgtaagcctg tttcatctcc ggtgcgtcga tatacgccat 600  
 ccgaatttta tgtttcgcgc cgtcgcgcgc gatgaogtga agggatatcg cgtcatagac 660  
 tttggacacc gtgcctgtgt agctgtggcc ggatttcgcc gatgccgctc gccgaacggg 720  
 cgcgtcgaac cccacgtccc ctgcagtgcc gagtacgtcg agtacggcaa ccgccgtccg 780  
 caccgcctca ctgtcatatc ccgtataacc caacgcgccc aaaagcgaca ggcgcacggg 840  
 aagccatttc atgatttttt taatctgcat atttttcaaa tgccgatgcc gtctgaacat 900  
 ctctga 906

<210> 840  
 <211> 301  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 840  
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 1                      5                      10                      15  
 Leu Pro Pro Leu Gln Asn Asn Pro Pro Phe Tyr Arg Lys Asn Arg Arg  
 20                      25                      30  
 Leu Asn Phe Phe Ile Ala Ala Asp Gly Gly Cys Ala Ser Pro Gln Lys  
 35                      40                      45

Cys Arg Ala Arg Gly Phe Gln Thr Ala Phe Ala Val Gln Gly Arg Ala  
 50 55 60  
 Val Ser Leu Pro Asn Ala Gln Pro Phe Ala His Gly Ile His Pro Ile  
 65 70 75 80  
 Leu Ile Ala Pro Ala Ala Pro Ala Cys Pro Ala Val Arg Pro Arg Arg  
 85 90 95  
 Leu Arg Ile Phe Ser Phe Pro Gln Ser Phe Ala Phe Pro Phe Arg Leu  
 100 105 110  
 Asn Leu Ser Val Gly Ile Val Gly Lys Ile Arg Leu Ile Leu Leu Phe  
 115 120 125  
 Phe Ser Ile Thr Phe Ile Met Pro Arg Arg Pro Val Leu His Leu His  
 130 135 140  
 Gln Val Gln Ile Gly Phe Ala Gly Gly Tyr Leu Arg His Phe Ala Leu  
 145 150 155 160  
 Ile Ala Val Gly Phe Lys His Thr Tyr Thr Asp Phe Pro Thr Leu Arg  
 165 170 175  
 Arg Arg Ala Gln Val Val Ala Arg Thr Cys Thr Val Ser Leu Phe His  
 180 185 190  
 Leu Arg Cys Val Asp Ile Arg His Pro Asn Phe Met Phe Arg Ala Val  
 195 200 205  
 Ala Val Asp Asp Val Lys Gly Ile Ala Val Ile Asp Phe Gly His Arg  
 210 215 220  
 Ala Cys Val Ala Val Ala Gly Phe Arg Arg Cys Pro Ser Ala Asn Gly  
 225 230 235 240  
 Arg Val Glu Thr His Val Pro Cys Ser Ala Glu Tyr Val Glu Tyr Gly  
 245 250 255  
 Asn Arg Arg Pro His Arg Leu Thr Val Ile Ser Arg Ile Thr Gln Arg  
 260 265 270  
 Ala Gln Lys Arg Gln Gly Asp Gly Lys Pro Phe His Asp Phe Phe Asn  
 275 280 285  
 Leu His Ile Phe Gln Met Pro Met Pro Ser Glu His Leu  
 290 295 300

<210> 841

<211> 222

<212> DNA

<213> *Neisseria meningitidis*

<400> 841

atgtcaaaac gaaaatccat aaaccgtccg tatcaaaaac cggcggaact gccgccgttg 60  
 caaaataatc cgccatttta ccgtaaaaac cgccgcctga acttttttat cgcggcagac 120

ggcgggttgcg cgtctccgca aaaatgcagg gcgcgcgggtt ttcagacggc atttgccgtt 180  
 caaagccgtg cgggtgtcttt accaaatgcc caaccattcg gc 222

<210> 842  
 <211> 74  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 842  
 Met Ser Lys Arg Lys Ser Ile Asn Arg Pro Tyr Gln Lys Pro Ala Glu  
 1 5 10 15  
 Leu Pro Pro Leu Gln Asn Asn Pro Pro Phe Tyr Arg Lys Asn Arg Arg  
 20 25 30  
 Leu Asn Phe Phe Ile Ala Ala Asp Gly Gly Cys Ala Ser Pro Gln Lys  
 35 40 45  
 Cys Arg Ala Arg Gly Phe Gln Thr Ala Phe Ala Val Gln Ser Arg Ala  
 50 55 60  
 Val Ser Leu Pro Asn Ala Gln Pro Phe Gly  
 65 70

<210> 843  
 <211> 903  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 843  
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 caaaataatc cgccatttta cgtataaaac cgccgcctga acttttttat cngggcagac 120  
 ggcgggttgcg cgtctccgca aaaatgcagg gcgcgcgggtt ttcagacggc atttgccgtt 180  
 caaagccgtg cgggtgtcttt accaaatgcc caaccattcg cccacggcat ccatccaatc 240  
 cttattgccc ccgcccgtcc tgcctgcccg gcggtacgcc cacggcgctt gcggattttt 300  
 agctttccac aatcctttgc gttccctttc cgctgaatt tgagcgtegg cataatcggc 360  
 aaaatccgcc ttatcctgct gttcttttagc ataacttta taatgccacg ccgccccgtc 420  
 ctgcacctgc atcaggttca aatcgggtttt gccgacagaa acctgcgcca cttcgcgtg 480  
 gtacgcgtcg gtgtcgaaca cgcggacgct gactttcctg ccttccgccg ccgcgcgcag 540  
 gttgtcgcgc gaacgcgtgc cgtaagcctg tttcatctcc ggcgcgtega tatacgccat 600  
 ccggattttg tgtttcgcgc cgtcgccgtc gataacgtga aggggtgtgc cgtcatagac 660  
 tttggacacc gtgcctgtgt agcgggtggc ggatttcgcc gatgctcggc ggcgggcggg 720  
 cgcgtcggaa cccgcgtccc ctgccgcgcc gagtacgtcg agtacggcaa ccgccgtccg 780  
 caccgcctcg ctgccgtacc ccgtataacc caacgcaccc aaaagcgaca aggcgacggg 840  
 aagccatttc atgatttttt taatctgcat atttttcaaa tgccgatgcc gtctgaacat 900  
 atc 903

<210> 844  
 <211> 301  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 844  
 Met Ser Lys Arg Lys Ser Ile Asn Arg Pro Tyr Gln Lys Pro Ala Glu

1	5	10	15
Leu Pro Pro	Leu Gln Asn Asn Pro	Pro Phe Tyr Arg Lys	Asn Arg Arg
	20	25	30
Leu Asn Phe	Phe Ile Xaa Ala Asp	Gly Gly Cys Ala Ser	Pro Gln Lys
	35	40	45
Cys Arg Ala	Arg Gly Phe Gln Thr Ala	Phe Ala Val Gln Ser	Arg Ala
	50	55	60
Val Ser Leu	Pro Asn Ala Gln Pro Phe	Ala His Gly Ile His	Pro Ile
	65	70	75
Leu Ile Ala	Pro Ala Ala Pro Ala Cys	Pro Ala Val Arg Pro	Arg Arg
	85	90	95
Leu Arg Ile	Phe Ser Phe Pro Gln Ser	Phe Ala Phe Pro Phe	Arg Leu
	100	105	110
Asn Leu Ser	Val Gly Ile Ile Gly Lys	Ile Arg Leu Ile Leu	Leu Phe
	115	120	125
Phe Ser Ile	Thr Phe Ile Met Pro Arg	Arg Pro Val Leu His	Leu His
	130	135	140
Gln Val Gln	Ile Gly Phe Ala Asp Arg	Asn Leu Arg His Phe	Ala Leu
	145	150	155
Val Ala Val	Gly Val Glu His Ala Asp	Ala Asp Phe Pro Ala	Phe Arg
	165	170	175
Arg Arg Ala	Gln Val Val Ala Arg Thr	Arg Ala Val Ser Leu	Phe His
	180	185	190
Leu Arg Arg	Val Asp Ile Arg His Pro	Asp Phe Val Phe Arg	Ala Val
	195	200	205
Ala Val Asp	Asn Val Lys Gly Val Ala	Val Ile Asp Phe Gly	His Arg
	210	215	220
Ala Cys Val	Ala Val Ala Gly Phe Arg	Arg Cys Ser Ala Ala	Gly Gly
	225	230	235
Arg Val Gly	Thr Arg Val Pro Cys Arg	Ala Glu Tyr Val Glu	Tyr Gly
	245	250	255
Asn Arg Arg	Pro His Arg Leu Ala Ala	Val Pro Arg Ile Thr	Gln Arg
	260	265	270
Thr Gln Lys	Arg Gln Gly Asp Gly Lys	Pro Phe His Asp Phe	Phe Asn
	275	280	285
Leu His Ile	Phe Gln Met Pro Met Pro	Ser Glu His Ile	
	290	295	300

<210> 845  
 <211> 699  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 845  
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 caaaataatc cgccatttta cgtataaaac cgccgcctga acttttttat cgcggcagac 120  
 ggcggttgcg cgtctccgca aaaatgcagg gcgcgcggtt ttcagacggc atttgccgtt 180  
 caaggcgcgtg cgggtgtctt accaaatgcc caaccattcg cccacggaat ccatccaatc 240  
 cttattgccc ccgccgtccc tgccctgccg gcggtacgcc caccgcgctt gcggattttt 300  
 agctttccac aatcctttgc gttccctttc cgctgaatt tgagcgtcgg catagtcggc 360  
 aaaatccgcc ttatcctgct gttcttttagc ataactttta taatgccacg ccgccccgtc 420  
 ctgcacctgc atcagggttca aatcggtttt gccggcggat acctgcgcca cttcgcgctg 480  
 atagcgggtcg gtttcaaaca cactacaat gaggttcgta ccctccgccg ccgcgcgcag 540  
 gttgtcgcgc gaacgtgtac cgtaacgcgtg tttcatctcc ggtgcgtcga tatacgccat 600  
 ccgaatttta tgtttcgcgc cgtcgcgcgtc gatgacgtga aggtatcgc cgtcatagac 660  
 tttggacacc gtgcctgcgt agctgtggcc ggatttcgc 699

<210> 846  
 <211> 233  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 846  
 Met Ser Lys Arg Lys Ser Ile Asn Arg Pro Tyr Gln Lys Pro Ala Glu  
 1 5 10 15  
 Leu Pro Pro Leu Gln Asn Asn Pro Pro Phe Tyr Arg Lys Asn Arg Arg  
 20 25 30  
 Leu Asn Phe Phe Ile Ala Ala Asp Gly Gly Cys Ala Ser Pro Gln Lys  
 35 40 45  
 Cys Arg Ala Arg Gly Phe Gln Thr Ala Phe Ala Val Gln Gly Arg Ala  
 50 55 60  
 Val Ser Leu Pro Asn Ala Gln Pro Phe Ala His Gly Ile His Pro Ile  
 65 70 75 80  
 Leu Ile Ala Pro Ala Ala Pro Ala Cys Pro Ala Val Arg Pro Arg Arg  
 85 90 95  
 Leu Arg Ile Phe Ser Phe Pro Gln Ser Phe Ala Phe Pro Phe Arg Leu  
 100 105 110  
 Asn Leu Ser Val Gly Ile Val Gly Lys Ile Arg Leu Ile Leu Leu Phe  
 115 120 125  
 Phe Ser Ile Thr Phe Ile Met Pro Arg Arg Pro Val Leu His Leu His  
 130 135 140  
 Gln Val Gln Ile Gly Phe Ala Gly Gly Tyr Leu Arg His Phe Ala Leu  
 145 150 155 160  
 Ile Ala Val Gly Phe Lys His Thr Tyr Asn Glu Phe Arg Thr Leu Arg

165 170 175  
 Arg Arg Ala Gln Val Val Ala Arg Thr Cys Thr Val Ser Val Phe His  
 180 185 190  
 Leu Arg Cys Val Asp Ile Arg His Pro Asn Phe Met Phe Arg Ala Val  
 195 200 205  
 Ala Val Asp Asp Val Lys Gly Ile Ala Val Ile Asp Phe Gly His Arg  
 210 215 220  
 Ala Cys Val Ala Val Ala Gly Phe Arg  
 225 230

<210> 847  
 <211> 930  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 847  
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 caaaataatc cgccatttta cgttaaaaac cgccgcctga acttttttat cgcggcagac 120  
 ggcggttgcg cgtctccgca aaaatgcagg gcgcgcggtt ttcagacggc atttgccgtt 180  
 caaagccgtg cgggtgtcttt accaaatgcc caaccattcg cccacggcat ccatccaatc 240  
 cttattgccc ccgccgtccc tgccgtgctcg gcggtacgcc caccgcgctt gcggattttt 300  
 agctttccac aatcctttgc gtcccttttc cgcctgaatt tgagcgtcgg cataatcggc 360  
 aaaatccgcc ttatcctgtc gtctctttagc ataactttta taatgccacg ccgccccgtc 420  
 ctgcacctgc atcagggtca aatcgggtttt gccgacagaa acctgcgcca ctgcgcgtcg 480  
 gtacgcggtcg gtatcgaaca cgcgcacgct gactttcctg ccttcgcgcg ccgcgcgcag 540  
 gttgtcgcgc gaacgcgtgc cgtaagcctg tttcatctcc ggcgcgctcg tatacgccat 600  
 ccggattttg tgtttcgcgc cgtcgcgcgc gataacgtga aggggtgtcg cgcatagac 660  
 tttggacacc gtgcctgtgt agcgggtggc ggatttcgcc gatgctcggc ggcgggcggg 720  
  
 cgcgtcggaa ccgcggtccc ctgcgcgcgc gagtacgtcg agtacggcaa ccgcggtccc 780  
 caccgcctcg ctgcggtacc ccgtataacc caacgcaccc aaaagcgaca gggcgacggg 840  
 aagccatttc atgatttttt taatctgcat atttttcaa tgccgatgcc gtctgaacat 900  
 atcgaatcg gatttcagac ggcattctaa 930

<210> 848  
 <211> 309  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 848  
 Met Ser Lys Arg Lys Ser Ile Asn Arg Pro Tyr Gln Lys Pro Ala Glu  
 1 5 10 15  
  
 Leu Pro Pro Leu Gln Asn Asn Pro Pro Phe Tyr Arg Lys Asn Arg Arg  
 20 25 30  
  
 Leu Asn Phe Phe Ile Ala Ala Asp Gly Gly Cys Ala Ser Pro Gln Lys  
 35 40 45  
  
 Cys Arg Ala Arg Gly Phe Gln Thr Ala Phe Ala Val Gln Ser Arg Ala

50	55	60
Val Ser Leu Pro Asn Ala Gln Pro Phe Ala His Gly Ile His Pro Ile 65 70 75 80		
Leu Ile Ala Pro Ala Ala Pro Ala Cys Ser Ala Val Arg Pro Arg Arg 85 90 95		
Leu Arg Ile Phe Ser Phe Pro Gln Ser Phe Ala Phe Pro Phe Arg Leu 100 105 110		
Asn Leu Ser Val Gly Ile Ile Gly Lys Ile Arg Leu Ile Leu Leu Phe 115 120 125		
Phe Ser Ile Thr Phe Ile Met Pro Arg Arg Pro Val Leu His Leu His 130 135 140		
Gln Val Gln Ile Gly Phe Ala Asp Arg Asn Leu Arg His Phe Ala Leu 145 150 155 160		
Val Ala Val Gly Ile Glu His Ala His Ala Asp Phe Pro Ala Phe Arg 165 170 175		
Arg Arg Ala Gln Val Val Ala Arg Thr Arg Ala Val Ser Leu Phe His 180 185 190		
Leu Arg Arg Val Asp Ile Arg His Pro Asp Phe Val Phe Arg Ala Val 195 200 205		
Ala Val Asp Asn Val Lys Gly Val Ala Val Ile Asp Phe Gly His Arg 210 215 220		
Ala Cys Val Ala Val Ala Gly Phe Arg Arg Cys Ser Ala Ala Gly Gly 225 230 235 240		
Arg Val Gly Thr Arg Val Pro Cys Arg Ala Glu Tyr Val Glu Tyr Gly 245 250 255		
Asn Arg Arg Pro His Arg Leu Ala Ala Val Pro Arg Ile Thr Gln Arg 260 265 270		
Thr Gln Lys Arg Gln Gly Asp Gly Lys Pro Phe His Asp Phe Phe Asn 275 280 285		
Leu His Ile Phe Gln Met Pro Met Pro Ser Glu His Ile Gly Ile Gly 290 295 300		
Phe Gln Thr Ala Ser 305		

<210> 849

<211> 930

<212> DNA

<213> Neisseria meningitidis

<400> 849

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caaaataatc cgccatttta ccgtaaaaac cgccgcctga acttttttat cgcggcagac 120
ggcggttgcg cgtctccgca aaaatgcagg gcgcgcggtt ttcagacggc atttgccgtt 180
caaagccgtg cgggtgtctt accaaatgcc caaccattcg cccacggcat ccatccaatc 240
cttattgccc ccgccgtcc tgcctgccc gcggtacgcc caccggcgtt gcggattttt 300
agctttccac aatcctttgc gttccctttc cgctgaatt tgagcgtcgg cataatcggc 360
aaaatccgcc ttatcctgct gttcttttagc ataactttta taatgccacg ccgcccgcgc 420
ctgcacctgc atcaggttca aatcggtttt gccgacagaa acctgcgcca cttcgcgctg 480
gtagcggtcg gtgtcgaaca cgcggacgct gactttcctg ccttcgcccg ccgcgcgcag 540

ggtgtcgcgc gaacgcgtgc cgtaagcctg tttcatctcc ggcgcgctcg tatacgccat 600
ccggattttg tgtttcgcgc cgtcgccgct gataacgtga aggggtgcgc cgtcatagac 660
tttgacacc gtgcctgtgt agcgggtggc ggatttcgcc gatgctcggc ggcgggcggg 720
cgcgctcgaa cccgcgtccc ctgccgcgcc gactacgtcg agtacggcaa ccgccgtccg 780
caccgcctcg ctgccgtacc ccgtataacc caacgcaccc aaaagcgaca aggcgcgcgg 840
aagccatttc atgatttttt taatctgcat atttttcaaa tgccgatgcc gtctgaacat 900
atcggaatcg gatttcagac ggcattcttaa 930

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<210> 850

<211> 309

<212> PRT

<213> Neisseria meningitidis

<400> 850

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Met Ser Lys Arg Lys Ser Ile Asn Arg Pro Tyr Gln Lys Pro Ala Glu
  1             5             10             15

Leu Pro Pro Leu Gln Asn Asn Pro Pro Phe Tyr Arg Lys Asn Arg Arg
      20             25             30

Leu Asn Phe Phe Ile Ala Ala Asp Gly Gly Cys Ala Ser Pro Gln Lys
      35             40             45

Cys Arg Ala Arg Gly Phe Gln Thr Ala Phe Ala Val Gln Ser Arg Ala
      50             55             60

Val Ser Leu Pro Asn Ala Gln Pro Phe Ala His Gly Ile His Pro Ile
      65             70             75             80

Leu Ile Ala Pro Ala Ala Pro Ala Cys Pro Ala Val Arg Pro Arg Arg
      85             90             95

Leu Arg Ile Phe Ser Phe Pro Gln Ser Phe Ala Phe Pro Phe Arg Leu
      100            105            110

Asn Leu Ser Val Gly Ile Ile Gly Lys Ile Arg Leu Ile Leu Leu Phe
      115            120            125

Phe Ser Ile Thr Phe Ile Met Pro Arg Arg Pro Val Leu His Leu His
      130            135            140

Gln Val Gln Ile Gly Phe Ala Asp Arg Asn Leu Arg His Phe Ala Leu
      145            150            155            160

Val Ala Val Gly Val Glu His Ala Asp Ala Asp Phe Pro Ala Phe Arg
      165            170            175

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Arg Arg Ala Gln Val Val Ala Arg Thr Arg Ala Val Ser Leu Phe His  
180 185 190

Leu Arg Arg Val Asp Ile Arg His Pro Asp Phe Val Phe Arg Ala Val  
195 200 205

Ala Val Asp Asn Val Lys Gly Val Ala Val Ile Asp Phe Gly His Arg  
210 215 220

Ala Cys Val Ala Val Ala Gly Phe Arg Arg Cys Ser Ala Ala Gly Gly  
225 230 235 240

Arg Val Gly Thr Arg Val Pro Cys Arg Ala Glu Tyr Val Glu Tyr Gly  
245 250 255

Asn Arg Arg Pro His Arg Leu Ala Ala Val Pro Arg Ile Thr Gln Arg  
260 265 270

Thr Gln Lys Arg Gln Gly Asp Gly Lys Pro Phe His Asp Phe Phe Asn  
275 280 285

Leu His Ile Phe Gln Met Pro Met Pro Ser Glu His Ile Gly Ile Gly  
290 295 300

Phe Gln Thr Ala Ser  
305

<210> 851

<211> 873

<212> DNA

<213> Neisseria gonorrhoeae

<400> 851

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gccgtcggag gaacggccgg cagcctgttt atgccgtcgg taccgcgcaa ggctgccgat 180
accctaatcg agtgaatat tgtccgtggt acaaaatccc tgctgcgtga aacggtgcgg 240
cacaatcccg tttttaccgc cattatcggc atctcgtggt tttggtttgt cggcgcgggt 300
tataccaacg aactgccgac ctttaccctc atccatttgg gcggcaacga taatgttttt 360
aacctgatgc ttgctttggt ttccatcggt attgccgcgg gttcgttact gtgtgccaa 420
ttcggcaggg aacggctgat gttggcttgg gtaacgggtg gtgcgttggg ttcgacgggt 480
tgccggcctg ttttggtgtg gctgacgcac ggacaccggt ttgaagggct gaacggcatt 540
ttttggtttt tatcgcaagg atgggcatac cccgtgatgg cggatgatgac gctgatcggc 600
tttttcggcg gattttttct cgttcgcgtc tatacctggc tgcaaaccgc cagcagcgag 660
actttccgcg cccgcgccgt tgccgccaac aatatcgta acggcatctt tatggtttcc 720
gccgcggttt tgagcgcggg attgctgttt ttgtttgaca gcatttcctt gctgtatctg 780
attgtgcctt tgggcaatat tccgttggcg gtatttttga ttaagcgcga aaggcggttt 840
ttaggcgcgg cggcaatcag gaaaaaacct tga 873
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<210> 852

<211> 290

<212> PRT

<213> Neisseria gonorrhoeae

[illegible]

<210> 853  
 <211> 868  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 853  
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 ttgggaacgg cgggtggcagg tgtaccgcct tatattgtcg ggatactggt tttgctggtc 120  
 gccgtcggag gcacggtcgg cagcctgttt atgccgtccg taccgcgcaa ggctgccgat 180  
 acacaaattg agtgaatat tgtccgtggc acaaaatccc tgctgcgtga aacgggtcgg 240  
 cacaagcccg tttttaccgc cattatcggg atttcgtggg tttggtttgt cggcgcggtt 300  
 tataccacgc aactgccgac ctttacccaa atccatctgg gcggcaacga caatgttttc 360  
 aacctgatgc ttgctctggt ttccatcggg attgccgcgg gttcggtaact gtgtgccaag 420  
 ttcagcakgg aacgcctgat gttggccttg gtaacggttg gtgcgttggg tttgacgggt 480  
 tgccgcttgg ttttgggtg gctgacgcac ggacaccgtt ttgaagggt gaacggcatt 540  
 ttttrgtttt tatcgcaagg atgggcatat cccgtgatgg cggatgatgac gctgatcggc 600  
 tttttcggcg gatttttctc cgttccgctc tatacctgtg caaaccgcca tagcgagatt 660  
 tccgcgcccg gccgttgccg ccaacaatat cgtaaacggg atttttatgg tttccgctgc 720  
 cgttttgagc gcggtgttgc tgtttttgtt tgacagcatt tccttggtgt atctgattgt 780  
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 cgcgcgcgca atcaggaaaa aaccttga 868

<210> 854  
 <211> 288  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 854  
 Met Met Gly Asn Ser Leu Ile Glu Ser Gly Thr Phe Val Ala Ile Leu  
 1 5 10 15  
 Phe Gly Gln Ile Leu Gly Thr Ala Val Ala Gly Val Pro Pro Tyr Ile  
 20 25 30  
 Val Gly Ile Leu Val Leu Leu Val Ala Val Gly Gly Thr Val Gly Ser  
 35 40 45  
 Leu Phe Met Pro Ser Val Pro Ala Lys Ala Ala Asp Thr Gln Ile Glu  
 50 55 60  
 Trp Asn Ile Val Arg Gly Thr Lys Ser Leu Leu Arg Glu Thr Val Arg  
 65 70 75 80  
 His Lys Pro Val Phe Thr Ala Ile Ile Gly Ile Ser Trp Phe Trp Phe  
 85 90 95  
 Val Gly Ala Val Tyr Thr Thr Gln Leu Pro Thr Phe Thr Gln Ile His  
 100 105 110  
 Leu Gly Gly Asn Asp Asn Val Phe Asn Leu Met Leu Ala Leu Phe Ser  
 115 120 125  
 Ile Gly Ile Ala Ala Gly Ser Val Leu Cys Ala Lys Phe Ser Xaa Glu

130	135	140
Arg Leu Met Leu Ala Trp Val Thr Val Gly Ala Leu Gly Leu Thr Val		
145	150	155 160
Cys Gly Leu Val Leu Val Trp Leu Thr His Gly His Arg Phe Glu Gly		
	165	170 175
Leu Asn Gly Ile Phe Xaa Phe Leu Ser Gln Gly Trp Ala Tyr Pro Val		
	180	185 190
Met Ala Val Met Thr Leu Ile Gly Phe Phe Gly Gly Phe Phe Ser Val		
	195	200 205
Pro Leu Tyr Thr Val Gln Thr Ala Ile Ala Arg Phe Pro Arg Pro Ala		
	210	215 220
Val Ala Ala Asn Asn Ile Val Asn Gly Ile Phe Met Val Ser Ala Ala		
225	230	235 240
Val Leu Ser Ala Val Leu Leu Phe Leu Phe Asp Ser Ile Ser Leu Leu		
	245	250 255
Tyr Leu Ile Val Ala Leu Gly Asn Ile Pro Leu Ser Val Phe Leu Ile		
	260	265 270
Lys Arg Glu Arg Arg Phe Leu Gly Ala Ala Ala Ile Arg Lys Lys Pro		
	275	280 285

<210> 855  
 <211> 1311  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 855  
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 gctacgcagt ttctcggcgc gttcaacgac aatgtgttca aaaccgcgct gtttgtgatg 120  
 attgggtttt acggttttgg gcaaaacggc ttcttgccctg ccggacagat gttgaacttg 180  
 ggcgcggttg tgtttatatt gccgtatttc ctgttttcct cgctgtcggg gcagttgggt 240  
 aacaaattcg acaaggccgt tttggcgcgt tgggccaagg tgctggaaat gatcattatg 300  
 gcggtggcgg catacgggtt ttatatccgg tctgccccgc tgcttttggc gtgtctgttt 360  
 tgcattggcg cgcaatcgac gctgttcggg ccgctgaaat acgccatcct gcccgattat 420  
 ctgcacgaca aagagttgat gatgggcaac agcctgattg aatcgggtac gtttgtcgcc 480  
 atcctgttcg gtcagatact ggggactgcg gtggcagggtg taccgcctta tattgtcggg 540  
 atactggttt tgctggtcgc cgtaggaggc acggtcggca gcctgtttat gccgtccgta 600  
 cccgccaaagg ctgccgatac acaaattgag tggaaatattg tccgggggtac aaaatccctg 660  
 ctgcgtgaaa cgggtgcggca caagcccgtt ttaccgcca ttatcggtat ttcgtgggtt 720  
 tggtttgtcg gcgcggttta taccacgcaa ctgccgacct ttacccaaat ccatctaggc 780  
 ggcaacgaca atgttttcaa cctgatgctt gccctgtttt ccatcggtat tgccgcgggt 840  
 tcggtactgt gtgccaagtt cagcagggaa cggtcagggt tggcttgggt aacggttgg 900  
 gcgttgggtt tgacgggttt cggcttgggt ttggtgtggc tgacgcacgg acaccgtttt 960  
 gaagggtcga acggcatatt ttggttttta tcgcaaggat gggcatatcc cgtgatggcg 1020  
 gtgatgacgc tgatcggtt tttcggcgga tttttctccg ttccgctcta tacctggctg 1080

caaacgcgcca gtagcgagac ttccgcgcgc cgcgcggttg ccgccaacaa tatcggttaac 1140  
 ggtatttttta tggtttccgc tgccgttttg agcgcggtgt tgctgttttt gtttgacagc 1200  
 atttccttgt tgtatctgat tgtcgctttg ggcaatattc cgttgctcgtt atttttgatt 1260  
 aagcgcgaaa ggcggttttt aggcgcggcg gcaatcagga aaaaaccttg a 1311

<210> 856  
 <211> 436  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 856  
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 Ala Pro Leu Phe Ala Thr Gln Phe Leu Gly Ala Phe Asn Asp Asn Val  
           20                  25                  30  
 Phe Lys Thr Ala Leu Phe Val Met Ile Gly Phe Tyr Gly Leu Gly Gln  
           35                  40                  45  
 Asn Gly Phe Leu Pro Ala Gly Gln Met Leu Asn Leu Gly Ala Leu Leu  
           50                  55                  60  
 Phe Ile Leu Pro Tyr Phe Leu Phe Ser Ser Leu Ser Gly Gln Leu Gly  
           65                  70                  75                  80  
 Asn Lys Phe Asp Lys Ala Val Leu Ala Arg Trp Ala Lys Val Leu Glu  
                   85                  90                  95  
 Met Ile Ile Met Ala Val Ala Ala Tyr Gly Phe Tyr Ile Arg Ser Ala  
           100                  105                  110  
 Pro Leu Leu Leu Ala Cys Leu Phe Cys Met Gly Ala Gln Ser Thr Leu  
           115                  120                  125  
 Phe Gly Pro Leu Lys Tyr Ala Ile Leu Pro Asp Tyr Leu Asp Asp Lys  
           130                  135                  140  
 Glu Leu Met Met Gly Asn Ser Leu Ile Glu Ser Gly Thr Phe Val Ala  
           145                  150                  155                  160  
 Ile Leu Phe Gly Gln Ile Leu Gly Thr Ala Val Ala Gly Val Pro Pro  
           165                  170                  175  
 Tyr Ile Val Gly Ile Leu Val Leu Leu Val Ala Val Gly Gly Thr Val  
           180                  185                  190  
 Gly Ser Leu Phe Met Pro Ser Val Pro Ala Lys Ala Ala Asp Thr Gln  
           195                  200                  205  
 Ile Glu Trp Asn Ile Val Arg Gly Thr Lys Ser Leu Leu Arg Glu Thr  
           210                  215                  220  
 Val Arg His Lys Pro Val Phe Thr Ala Ile Ile Gly Ile Ser Trp Phe  
           225                  230                  235                  240

Trp Phe Val Gly Ala Val Tyr Thr Thr Gln Leu Pro Thr Phe Thr Gln  
 245 250 255  
 Ile His Leu Gly Gly Asn Asp Asn Val Phe Asn Leu Met Leu Ala Leu  
 260 265 270  
 Phe Ser Ile Gly Ile Ala Ala Gly Ser Val Leu Cys Ala Lys Phe Ser  
 275 280 285  
 Arg Glu Arg Leu Arg Leu Ala Trp Val Thr Val Gly Ala Leu Gly Leu  
 290 295 300  
 Thr Val Cys Gly Leu Val Leu Val Trp Leu Thr His Gly His Arg Phe  
 305 310 315 320  
 Glu Gly Leu Asn Gly Ile Phe Trp Phe Leu Ser Gln Gly Trp Ala Tyr  
 325 330 335  
 Pro Val Met Ala Val Met Thr Leu Ile Gly Phe Phe Gly Gly Phe Phe  
 340 345 350  
 Ser Val Pro Leu Tyr Thr Trp Leu Gln Thr Ala Ser Ser Glu Thr Phe  
 355 360 365  
 Arg Ala Arg Ala Val Ala Ala Asn Asn Ile Val Asn Gly Ile Phe Met  
 370 375 380  
 Val Ser Ala Ala Val Leu Ser Ala Val Leu Leu Phe Leu Phe Asp Ser  
 385 390 395 400  
 Ile Ser Leu Leu Tyr Leu Ile Val Ala Leu Gly Asn Ile Pro Leu Ser  
 405 410 415  
 Val Phe Leu Ile Lys Arg Glu Arg Arg Phe Leu Gly Ala Ala Ala Ile  
 420 425 430  
 Arg Lys Lys Pro  
 435

<210> 857  
 <211> 690  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 857  
 atgaaacgca aaaatatcgc gctgattccc gccgcccggca tcggggtgcg tttcgggtgcg 60  
 gacaaaccca agcaatatgt cgaaatcgga agcaaaaccg ttttagaaca tgtacttggg 120  
 atttttgaac ggcatgaggc cgtcgatttg accgtcgttg tcgtctcgcc cgaagacacg 180  
 tttgccgata aggttcagac ggcatttcca cagggttcggg tgtggaaaaa cgggtggacag 240  
 acccgcgccg aaactgtccg caacggtgtg gcaaaactgt tggaaaccgg tttggcggcg 300  
 gaaaccgaca atattctggt acacgatgcc gcccgctgct gcctgccgtc tgaagctctg 360  
 gcgcggttga tagaacaggc gggcaacgcc gccgaaggcg ggattttggc agttcccgtt 420  
 gccgatacgc tcaagcgcgc agaaagcgga caaatcagtg caactgtcga ccgttcgggg 480  
 ctttggcagg cgcaaacgcc gcagcttttt caagcgggtt tgctgcaccg cgcatgggct 540  
 gcggaaaact tgggcggcat taccgatgaa gcgtccgccg tggaaaaact ggggtgtgcgt 600  
 ccgctactga tacagggcga cgcgcgcaat ttgaaactga cgcagccgca ggacgcatac 660

atcgtcaggc tgctgctcaa tgccgtctga

690

<210> 858  
<211> 229  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 858  
Met Lys Arg Lys Asn Ile Ala Leu Ile Pro Ala Ala Gly Ile Gly Val  
1 5 10 15  
Arg Phe Gly Ala Asp Lys Pro Lys Gln Tyr Val Glu Ile Gly Ser Lys  
20 25 30  
Thr Val Leu Glu His Val Leu Gly Ile Phe Glu Arg His Glu Ala Val  
35 40 45  
Asp Leu Thr Val Val Val Val Ser Pro Glu Asp Thr Phe Ala Asp Lys  
50 55 60  
Val Gln Thr Ala Phe Pro Gln Val Arg Val Trp Lys Asn Gly Gly Gln  
65 70 75 80  
Thr Arg Ala Glu Thr Val Arg Asn Gly Val Ala Lys Leu Leu Glu Thr  
85 90 95  
Gly Leu Ala Ala Glu Thr Asp Asn Ile Leu Val His Asp Ala Ala Arg  
100 105 110  
Cys Cys Leu Pro Ser Glu Ala Leu Ala Arg Leu Ile Glu Gln Ala Gly  
115 120 125  
Asn Ala Ala Glu Gly Gly Ile Leu Ala Val Pro Val Ala Asp Thr Leu  
130 135 140  
Lys Arg Ala Glu Ser Gly Gln Ile Ser Ala Thr Val Asp Arg Ser Gly  
145 150 155 160  
Leu Trp Gln Ala Gln Thr Pro Gln Leu Phe Gln Ala Gly Leu Leu His  
165 170 175  
Arg Ala Leu Ala Ala Glu Asn Leu Gly Gly Ile Thr Asp Glu Ala Ser  
180 185 190  
Ala Val Glu Lys Leu Gly Val Arg Pro Leu Leu Ile Gln Gly Asp Ala  
195 200 205  
Arg Asn Leu Lys Leu Thr Gln Pro Gln Asp Ala Tyr Ile Val Arg Leu  
210 215 220  
Leu Leu Asn Ala Val  
225

<210> 859

<211> 456  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 859  
 atgaagcgca aaaatatcgc gctgattccc gccgcgggca tcggggcgcg tttcgggtgcg 60  
 gacaaaccca agcaatatgt cgaaatcgga agcaaaaccg ttttagaaca tacgattggg 120  
 atttttgaac ggcatgaggc cgtcgatttg accgtcgttg tcgtctcgcc cgaagacacg 180  
 tttgccgata aggttcagac ggcattttcca caggttcggg tgtggaaaaa cggcggacag 240  
 acccgcgccg aaaccgtccg caacgggtgtg gcaaaactgt tggaaaccgg tttggcggcg 300  
 gaaaccgaca atattctggt acacgatgcc gcgcgttgct gcctgccgtc tgaagctttg 360  
 acgcggttga tagaacaggc gggcaacgcc gccgaaggcg ggattttggc aattcccatt 420  
 gccgatacgc tcaagtgcgc ggacgggtggg aacatt 456

<210> 860  
 <211> 152  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 860  
 Met Lys Arg Lys Asn Ile Ala Leu Ile Pro Ala Ala Gly Ile Gly Ala  
 1 5 10 15  
 Arg Phe Gly Ala Asp Lys Pro Lys Gln Tyr Val Glu Ile Gly Ser Lys  
 20 25 30  
 Thr Val Leu Glu His Thr Ile Gly Ile Phe Glu Arg His Glu Ala Val  
 35 40 45  
 Asp Leu Thr Val Val Val Val Ser Pro Glu Asp Thr Phe Ala Asp Lys  
 50 55 60  
 Val Gln Thr Ala Phe Pro Gln Val Arg Val Trp Lys Asn Gly Gly Gln  
 65 70 75 80  
 Thr Arg Ala Glu Thr Val Arg Asn Gly Val Ala Lys Leu Leu Glu Thr  
 85 90 95  
 Gly Leu Ala Ala Glu Thr Asp Asn Ile Leu Val His Asp Ala Ala Arg  
 100 105 110  
 Cys Cys Leu Pro Ser Glu Ala Leu Thr Arg Leu Ile Glu Gln Ala Gly  
 115 120 125  
 Asn Ala Ala Glu Gly Gly Ile Leu Ala Ile Pro Ile Ala Asp Thr Leu  
 130 135 140  
 Lys Cys Ala Asp Gly Gly Asn Ile  
 145 150

<210> 861  
 <211> 690  
 <212> DNA  
 <213> Neisseria meningitidis



<400> 861

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atgaagcgca aaaatatcgc gctgattccc gccgccggca tcggggcgcg tttcggtgcg 60
gacaaaccga agcaatatgt cgaaatcgga agcaaaaccg ttttagaaca tacgattggg 120
atTTTTgaac ggcatgaggc cgtcgatttg accgtcgttg tcgtctcgcc cgaagacacg 180
tttgccgata aggttcagac ggcatttcca caggttcggg tgtggaaaaa cggcggacag 240
accgcgccg aaactgtccg caacggtgtg gcaaaattgt tggaaccgg tttggcggcg 300
gaaaccgaca atattctggt acacgatgcc gcgcgttgct gcctgccgtc tgaagctttg 360
acgcggttga tagaacaggc gggcaacgct gccgaagggt ggattttggc aattcccgtt 420
gccgatacgc tcaagtgcgc ggacggtggg aacattagt caaccgtcga gcggacgagc 480
ctttggcagg cgcaaacgcc gcagcttttc cgcgccgggc tgctgcaccg cgcattggct 540
gcggaaaact tggacggcat taccgatgaa gcgtccgccg tggaaaaatt gggcatccgc 600
cctttgctgg tgcagggcga cgcgcgcaat ttgaaactga cgcagccgca ggacgcatac 660
atcgtcaggc tgctgctcga tgccgtctga 690
```

<210> 862

<211> 229

<212> PRT

<213> Neisseria meningitidis

<400> 862

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Met Lys Arg Lys Asn Ile Ala Leu Ile Pro Ala Ala Gly Ile Gly Ala
 1             5             10             15

Arg Phe Gly Ala Asp Lys Pro Lys Gln Tyr Val Glu Ile Gly Ser Lys
          20             25             30

Thr Val Leu Glu His Thr Ile Gly Ile Phe Glu Arg His Glu Ala Val
 35             40             45

Asp Leu Thr Val Val Val Val Ser Pro Glu Asp Thr Phe Ala Asp Lys
 50             55             60

Val Gln Thr Ala Phe Pro Gln Val Arg Val Trp Lys Asn Gly Gly Gln
 65             70             75             80

Thr Arg Ala Glu Thr Val Arg Asn Gly Val Ala Lys Leu Leu Glu Thr
          85             90             95

Gly Leu Ala Ala Glu Thr Asp Asn Ile Leu Val His Asp Ala Ala Arg
100             105             110

Cys Cys Leu Pro Ser Glu Ala Leu Thr Arg Leu Ile Glu Gln Ala Gly
115             120             125

Asn Ala Ala Glu Gly Gly Ile Leu Ala Ile Pro Val Ala Asp Thr Leu
130             135             140

Lys Cys Ala Asp Gly Gly Asn Ile Ser Ala Thr Val Glu Arg Thr Ser
145             150             155             160

Leu Trp Gln Ala Gln Thr Pro Gln Leu Phe Arg Ala Gly Leu Leu His
165             170             175

Arg Ala Leu Ala Ala Glu Asn Leu Asp Gly Ile Thr Asp Glu Ala Ser
180             185             190
```

Ala Val Glu Lys Leu Gly Ile Arg Pro Leu Leu Val Gln Gly Asp Ala  
 195 200 205

Arg Asn Leu Lys Leu Thr Gln Pro Gln Asp Ala Tyr Ile Val Arg Leu  
 210 215 220

Leu Leu Asp Ala Val  
 225

<210> 863

<211> 672

<212> DNA

<213> Neisseria gonorrhoeae

<400> 863

atgaaaaccg tttccgccgc catcgctttt gccgccgctg ccgttttcaact gaccggctgt 60  
 gcgaccgagt cctcacgcag cctcgaggtt gcaaaaagtcg cctcctgcaa tacgcaatat 120  
 cacggtgttc gcaccccgat ttccgtcgga acattcgaca accgctccag cttccaaaaa 180  
 ggcattttct ccgacagtga agaccgtctg gccagccagg caaaaaccat cctggtaaca 240  
 cacctgcaac aaaccaaccg cttcaacgta ctgaaccgca ccaaccttag cgcattgaaa 300  
 caggaatccg gcatttcggg caaagcgcag aacctgaaag gcgcagatta tgctgttacc 360  
 ggcgatgtaa ccgaattcgg acgcagagat gtcggcgatc atcagctctt cggcattttg 420  
 ggtcgcgga aatcgcaaat cgcctatgca aaagtggctc tgaatatcgt caacgtcaat 480  
 acttccgaaa tcgtctatct cacacagggc gcgggcgaat acgcactttc caaccgcgaa 540  
 atcatcggtt tcggcggcac ttccggctac gatgcgactt tgaacggcaa agtttttagac 600  
 ttggcaatcc gcgaagccgt cgacaacttg gttcaggctg tcgacaacgg cgcattggcaa 660  
 tccaaccggt aa 672

<210> 864

<211> 223

<212> PRT

<213> Neisseria gonorrhoeae

<400> 864

Met Lys Thr Val Ser Ala Ala Ile Ala Phe Ala Ala Ala Ala Val Ser  
 1 5 10 15

Leu Thr Gly Cys Ala Thr Glu Ser Ser Arg Ser Leu Glu Val Ala Lys  
 20 25 30

Val Ala Ser Cys Asn Thr Gln Tyr His Gly Val Arg Thr Pro Ile Ser  
 35 40 45

Val Gly Thr Phe Asp Asn Arg Ser Ser Phe Gln Lys Gly Ile Phe Ser  
 50 55 60

Asp Ser Glu Asp Arg Leu Gly Ser Gln Ala Lys Thr Ile Leu Val Thr  
 65 70 75 80

His Leu Gln Gln Thr Asn Arg Phe Asn Val Leu Asn Arg Thr Asn Leu  
 85 90 95

Ser Ala Leu Lys Gln Glu Ser Gly Ile Ser Gly Lys Ala Gln Asn Leu  
 100 105 110

Lys Gly Ala Asp Tyr Val Val Thr Gly Asp Val Thr Glu Phe Gly Arg  
115 120 125

Arg Asp Val Gly Asp His Gln Leu Phe Gly Ile Leu Gly Arg Gly Lys  
130 135 140

Ser Gln Ile Ala Tyr Ala Lys Val Ala Leu Asn Ile Val Asn Val Asn  
145 150 155 160

Thr Ser Glu Ile Val Tyr Ser Thr Gln Gly Ala Gly Glu Tyr Ala Leu  
165 170 175

Ser Asn Arg Glu Ile Ile Gly Phe Gly Gly Thr Ser Gly Tyr Asp Ala  
180 185 190

Thr Leu Asn Gly Lys Val Leu Asp Leu Ala Ile Arg Glu Ala Val Asp  
195 200 205

Asn Leu Val Gln Ala Val Asp Asn Gly Ala Trp Gln Ser Asn Arg  
210 215 220

<210> 865

<211> 164

<212> DNA

<213> Neisseria meningitidis

<400> 865

ggcgcgggcg aatacgcaact ttccaaccgt gaaatcatcg gtttcggcgg cacttccggc 60  
tacgatgcga ctttgaacgg caaagtttta gacttggcaa tccgcgaagc gtcaacagcc 120  
tggttcaggc tgttgacaac ggcgcatggc aacccaaccg ttaa 164

<210> 866

<211> 54

<212> PRT

<213> Neisseria meningitidis

<400> 866

Gly Ala Gly Glu Tyr Ala Leu Ser Asn Arg Glu Ile Ile Gly Phe Gly  
1 5 10 15

Gly Thr Ser Gly Tyr Asp Ala Thr Leu Asn Gly Lys Val Leu Asp Leu  
20 25 30

Ala Ile Arg Glu Ala Val Asn Ser Leu Val Gln Ala Val Asp Asn Gly  
35 40 45

Ala Trp Gln Pro Asn Arg  
50

<210> 867

<211> 399

<212> DNA

<213> Neisseria meningitidis

<400> 867

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aaccgcacct atttgaacgc attaaaacag gaatccggca tttccggcaa agcgcataac 60
ctgaaaggcg caaattatgt cgnnaccggc gatgtaaccg aattcggacg canagatgtc 120
ggcgatcatc agctcttcgg cattttgggt cgcggcaa at cgcaa atcgc ctatgcaaaa 180
gtggctctga atatcg tcaa cgtcaatact tccgaaatcg tctattccgc acagggcgcg 240
ggcgaatacg cactttccaa ccgtgaaatc atcggtttcg gcggcacttc cggctacgat 300
gcgactttga acggcaaagt tttagacttg gcaatccgcg aagccgtcaa cagcctggtt 360
caggctgttg acaacggcgc atggcaaccc aaccgttaa 399
```

<210> 868

<211> 132

<212> PRT

<213> *Neisseria meningitidis*

<400> 868

```
Asn Arg Thr Tyr Leu Asn Ala Leu Lys Gln Glu Ser Gly Ile Ser Gly
  1           5           10           15

Lys Ala His Asn Leu Lys Gly Ala Asn Tyr Val Xaa Thr Gly Asp Val
          20           25           30

Thr Glu Phe Gly Arg Xaa Asp Val Gly Asp His Gln Leu Phe Gly Ile
          35           40           45

Leu Gly Arg Gly Lys Ser Gln Ile Ala Tyr Ala Lys Val Ala Leu Asn
          50           55           60

Ile Val Asn Val Asn Thr Ser Glu Ile Val Tyr Ser Ala Gln Gly Ala
          65           70           75           80

Gly Glu Tyr Ala Leu Ser Asn Arg Glu Ile Ile Gly Phe Gly Gly Thr
          85           90           95

Ser Gly Tyr Asp Ala Thr Leu Asn Gly Lys Val Leu Asp Leu Ala Ile
          100          105          110

Arg Glu Ala Val Asn Ser Leu Val Gln Ala Val Asp Asn Gly Ala Trp
          115          120          125

Gln Pro Asn Arg
          130
```

<210> 869

<211> 648

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 869

```
atgaaacctt tgatttttagg gcttgccgcc gtgttggtc tgtctgcctg ccaagttcga 60
aaagctcccg acctcgacta cacgtcattc aaagaaagca aaccggcttc aattttggtg 120
gttccgccgc tgaacgagtc gcctgatgtc aacggcactt gggggatgct ggcttcgacc 180
gccgcgccga tttccgaagc cggctattac gtctttcccg ccgcagtcgt ggaggaaacc 240
ttcaaagaaa acggcttgac caatgccgcc gatattcacg ccgtccggcc ggaaaaactg 300
catcaaat ttcggcaatga tgcggttttg tacattacgg ttaccgaata cggcacttca 360
tatcaaat tagacagcgt gacgaccgta tccgccaaag cacggctggt cgattccgcg 420
```

```

aacgggaaag agttgtggtc gggttcggcc agcatccgcg aaggcagcaa caacagcaac 480
agcggcctgt tgggggcttt ggtcggcgca gtggtcaatc agattgcaa cagcctgacc 540
gaccgcgggt atcaggtttc caaaaccgcc gcatacaacc tactgtcgcc ctattcccgc 600
aacggtatct tgaaagggtc gagattcgtc gaagagcagc ccaaataa 648

```

```

<210> 870
<211> 215
<212> PRT
<213> Neisseria gonorrhoeae

```

```

<400> 870
Met Lys Pro Leu Ile Leu Gly Leu Ala Ala Val Leu Ala Leu Ser Ala
 1           5           10           15

Cys Gln Val Arg Lys Ala Pro Asp Leu Asp Tyr Thr Ser Phe Lys Glu
          20           25           30

Ser Lys Pro Ala Ser Ile Leu Val Val Pro Pro Leu Asn Glu Ser Pro
          35           40           45

Asp Val Asn Gly Thr Trp Gly Met Leu Ala Ser Thr Ala Ala Pro Ile
          50           55           60

Ser Glu Ala Gly Tyr Tyr Val Phe Pro Ala Ala Val Val Glu Glu Thr
          65           70           75           80

Phe Lys Glu Asn Gly Leu Thr Asn Ala Ala Asp Ile His Ala Val Arg
          85           90           95

Pro Glu Lys Leu His Gln Ile Phe Gly Asn Asp Ala Val Leu Tyr Ile
          100          105          110

Thr Val Thr Glu Tyr Gly Thr Ser Tyr Gln Ile Leu Asp Ser Val Thr
          115          120          125

Thr Val Ser Ala Lys Ala Arg Leu Val Asp Ser Arg Asn Gly Lys Glu
          130          135          140

Leu Trp Ser Gly Ser Ala Ser Ile Arg Glu Gly Ser Asn Asn Ser Asn
          145          150          155          160

Ser Gly Leu Leu Gly Ala Leu Val Gly Ala Val Val Asn Gln Ile Ala
          165          170          175

Asn Ser Leu Thr Asp Arg Gly Tyr Gln Val Ser Lys Thr Ala Ala Tyr
          180          185          190

Asn Leu Leu Ser Pro Tyr Ser Arg Asn Gly Ile Leu Lys Gly Pro Arg
          195          200          205

Phe Val Glu Glu Gln Pro Lys
          210          215

```

```

<210> 871
<211> 648

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<212> DNA

<213> *Neisseria meningitidis*

<400> 871

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atgaaacctt tgatttttagg gcttgccgcc gtgttggcgc tgtctgcctg ccaagttcaa 60
aaagcgcccg atttcgacta cacgtcattc aaggaaagca aaccggcttc aattttggtg 120
gttccgcccgc tgaacgaatc gcccgatgtc aacggaacat ggggtgtact ggcttcgacc 180
gccgcgccgc tttccgaagc cggctattac gtcttccccg ccgcagtcgt ggaggaaacc 240
ttcaaacaaa acggcttgac caatgccgcc gatattcacg ccgtccggcc ggaaaaactg 300
catcagattt tcggcaatga tgcggttttg tacattacgg ttaccgaata cggcacttca 360
tatcaaattt tagacagcgt gacgaccgta tccgccaaag cacggctggt cgattcccgc 420
aacggaaaag agtgttggtc gggttcggcc agcatccgcg aaggcagcaa caacagcaac 480
agcggcctgt tgggggcttt ggtcagcgca gtggtcaatc agattgcaa cagcctgacc 540
gaccgcggtt atcaggtttc caaaaccgcc gcatacaacc tgctgtcgcc ctattctcac 600
aacggcatct tgaaggtcc gagattcggt gaagagcagc ccaaataa 648
```

<210> 872

<211> 215

<212> PRT

<213> *Neisseria meningitidis*

<400> 872

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Met Lys Pro Leu Ile Leu Gly Leu Ala Ala Val Leu Ala Leu Ser Ala
 1                      5                      10                      15

Cys Gln Val Gln Lys Ala Pro Asp Phe Asp Tyr Thr Ser Phe Lys Glu
          20                      25                      30

Ser Lys Pro Ala Ser Ile Leu Val Val Pro Pro Leu Asn Glu Ser Pro
          35                      40                      45

Asp Val Asn Gly Thr Trp Gly Val Leu Ala Ser Thr Ala Ala Pro Leu
          50                      55                      60

Ser Glu Ala Gly Tyr Tyr Val Phe Pro Ala Ala Val Val Glu Glu Thr
          65                      70                      75                      80

Phe Lys Gln Asn Gly Leu Thr Asn Ala Ala Asp Ile His Ala Val Arg
          85                      90                      95

Pro Glu Lys Leu His Gln Ile Phe Gly Asn Asp Ala Val Leu Tyr Ile
          100                      105                      110

Thr Val Thr Glu Tyr Gly Thr Ser Tyr Gln Ile Leu Asp Ser Val Thr
          115                      120                      125

Thr Val Ser Ala Lys Ala Arg Leu Val Asp Ser Arg Asn Gly Lys Glu
          130                      135                      140

Leu Trp Ser Gly Ser Ala Ser Ile Arg Glu Gly Ser Asn Asn Ser Asn
          145                      150                      155                      160

Ser Gly Leu Leu Gly Ala Leu Val Ser Ala Val Val Asn Gln Ile Ala
          165                      170                      175
```

Asn Ser Leu Thr Asp Arg Gly Tyr Gln Val Ser Lys Thr Ala Ala Tyr  
180 185 190

Asn Leu Leu Ser Pro Tyr Ser His Asn Gly Ile Leu Lys Gly Pro Arg  
195 200 205

Phe Val Glu Glu Gln Pro Lys  
210 215

<210> 873  
<211> 648  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 873  
atgaaacctt tgatttttagg gcttgccgcc gtgttggcgc tgtctgcctg ccaagttcaa 60  
aaagcgcccg atttcgacta cacgtcattc aaggaaagca aaccggttc aattttggtg 120  
gttcgcccgc tgaacgaatc gcccgatgtc aacggaacat ggggtgtact ggcttcgacc 180  
gccgcgccgc tttccgaagc cggtctattac gtcttccccg ccgcagtcgt ggaggaaacc 240  
ttcaaacaaa acggcttgac caatgccgcc gatattcacg ccgtccggcc ggaaaaactg 300  
  
catcagattt tcggcaatga tgcggttttg tacattacgg ttaccgaata cggcacttca 360  
tatcaaattt tagacagcgt gacgaccgta tccgccaaag cacggctggt cgattcccgc 420  
aacgaaaaag agttgtggtc gggttcggcc agcatccgcg aaggcagcaa caacagcaac 480  
agcggcctgt tgggggcttt ggtcagcgca gtggtcaatc agattgcaa cagcctgacc 540  
gaccgcggtt atcaggtttc taaaaccgcc gcatacaacc tgctgtcgcc ctattctcac 600  
aacggcatct tgaaaggtcc gagattcgtc gaagagcagc ccaaataa 648

<210> 874  
<211> 215  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 874  
Met Lys Pro Leu Ile Leu Gly Leu Ala Ala Val Leu Ala Leu Ser Ala  
1 5 10 15  
  
Cys Gln Val Gln Lys Ala Pro Asp Phe Asp Tyr Thr Ser Phe Lys Glu  
20 25 30  
  
Ser Lys Pro Ala Ser Ile Leu Val Val Pro Pro Leu Asn Glu Ser Pro  
35 40 45  
  
Asp Val Asn Gly Thr Trp Gly Val Leu Ala Ser Thr Ala Ala Pro Leu  
50 55 60  
  
Ser Glu Ala Gly Tyr Tyr Val Phe Pro Ala Ala Val Val Glu Glu Thr  
65 70 75 80  
  
Phe Lys Gln Asn Gly Leu Thr Asn Ala Ala Asp Ile His Ala Val Arg  
85 90 95  
  
Pro Glu Lys Leu His Gln Ile Phe Gly Asn Asp Ala Val Leu Tyr Ile  
100 105 110

Thr Val Thr Glu Tyr Gly Thr Ser Tyr Gln Ile Leu Asp Ser Val Thr  
 115 120 125

Thr Val Ser Ala Lys Ala Arg Leu Val Asp Ser Arg Asn Gly Lys Glu  
 130 135 140

Leu Trp Ser Gly Ser Ala Ser Ile Arg Glu Gly Ser Asn Asn Ser Asn  
 145 150 155 160

Ser Gly Leu Leu Gly Ala Leu Val Ser Ala Val Val Asn Gln Ile Ala  
 165 170 175

Asn Ser Leu Thr Asp Arg Gly Tyr Gln Val Ser Lys Thr Ala Ala Tyr  
 180 185 190

Asn Leu Leu Ser Pro Tyr Ser His Asn Gly Ile Leu Lys Gly Pro Arg  
 195 200 205

Phe Val Glu Glu Gln Pro Lys  
 210 215

<210> 875  
 <211> 1038  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 875  
 atggcgcggtt tcgccttctc cgccgacatt ctccgcacag cgtttgcaga cggtttccata 60  
 acctgcaacc gcgcccacat cgcgggtgta atgccagcag cgttcgcatt tttcgccgctc 120  
 gctggctttg gcggcaacgg caagtcatc accgactttc acttctgctt tagacaccag 180  
 cagggcaaaag cgcaattctt cgcccaaagc attcagatag ccggccattt cttccggcgc 240  
 ggtaatttcg gcttcgcctt gcaaggacga accgacagtt ttgtcggcgc gcaaaggctc 300  
 gatagcggcg gttactgctt cgcgcgcttc gcggattgcc gtccattttt tcaccagttc 360  
 ggcttcggct ttttcgttga tggccgggaa ctctgtgcaa gtatggaaga ggacgctgtc 420  
 ttcttcgccg ccgcgatga tgtcccacgc ttcttcgccg gtgaagcaca aaatcgggtgc 480  
 aatcaagaga accaggctgc gcgtgatgtg gtacaggcgc gtttgcgcgc tgcggcgggc 540  
 gcggctgtcg gctttggtgg tgtagaggcg gtctttcagg atgtcgaggt agaacgcgcc 600  
 caagtcttcc gagcagaaaag aaacaatgtc ttacacggcg aagtggaagg catagcgcgg 660  
 atagtaaccg cctgccaac gctcttgacg ccgccgcgcc aataccaagg cgtagcggtc 720  
 gatttccacc atatccgcct gttgcacggc atcttcaatc ggattaaagt cgctcaaatt 780  
 ggcaaacagg aagctcaagg tattgcggtat gcggcggtag ctttcggtta cgcgtttgag 840  
 gatttctttg gaaatcgcca attcgccgct gtaatcggtg gatgccgcc acaggcgcag 900  
 gatgtccgcg ccgaattcgt tatagacttc ctgcggcgcg acgacgttgc cgatggattt 960  
 cgacattttg cggccgtttt ggtcaaccac gaaaccgtgg gtcagcagct gtttatacgg 1020  
 tgcgcgtccc atggatga 1038

<210> 876  
 <211> 345  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 876  
 Met Ala Arg Phe Ala Phe Ser Ala Asp Ile Leu Arg Thr Ala Phe Ala  
 1 5 10 15



Asp	Gly	Phe	Ile	Thr	Cys	Asn	Arg	Ala	His	Ile	Ala	Gly	Val	Met	Pro		
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Ala	Ala	Phe	Ala	Phe	Phe	Ala	Val	Ala	Gly	Phe	Gly	Gly	Asn	Gly	Lys		
		35					40					45					
Phe	Ile	Thr	Asp	Phe	His	Phe	Cys	Phe	Arg	His	Gln	Gln	Gly	Lys	Ala		
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Gln	Phe	Phe	Ala	Gln	Ser	Ile	Gln	Ile	Ala	Gly	His	Phe	Phe	Arg	Arg		
	65				70					75					80		
Gly	Asn	Phe	Gly	Phe	Arg	Leu	Gln	Gly	Arg	Thr	Asp	Ser	Phe	Val	Gly		
				85					90					95			
Ala	Gln	Arg	Leu	Asp	Ser	Gly	Gly	Tyr	Cys	Phe	Ala	Arg	Phe	Ala	Asp		
			100					105					110				
Cys	Arg	Pro	Phe	Phe	His	Gln	Phe	Gly	Phe	Gly	Phe	Phe	Val	Asp	Gly		
		115					120						125				
Arg	Glu	Leu	Val	Pro	Ser	Met	Glu	Glu	Asp	Ala	Val	Phe	Phe	Ala	Ala		
	130					135					140						
Ala	Asp	Asp	Val	Pro	Arg	Phe	Phe	Ala	Gly	Glu	Ala	Gln	Asn	Arg	Cys		
	145				150					155					160		
Asn	Gln	Glu	Asn	Gln	Ala	Ala	Arg	Asp	Val	Val	Gln	Gly	Gly	Leu	Arg		
				165					170					175			
Ala	Ala	Ala	Gly	Ala	Ala	Val	Gly	Phe	Gly	Gly	Val	Glu	Ala	Val	Phe		
			180					185					190				
Gln	Asp	Val	Glu	Val	Glu	Arg	Ala	Gln	Val	Phe	Arg	Ala	Glu	Arg	Asn		
		195					200					205					
Asn	Val	Phe	His	Gly	Glu	Val	Glu	Gly	Ile	Ala	Arg	Ile	Val	Thr	Ala		
	210					215					220						
Cys	Gln	Thr	Leu	Leu	Gln	Pro	Pro	Arg	Gln	Tyr	Gln	Gly	Val	Ala	Val		
225					230				235						240		
Asp	Phe	His	His	Ile	Arg	Leu	Leu	His	Gly	Ile	Phe	Asn	Arg	Ile	Lys		
				245					250					255			
Val	Ala	Gln	Ile	Gly	Lys	Gln	Glu	Ala	Gln	Gly	Ile	Ala	Asp	Ala	Ala		
			260					265					270				
Val	Ala	Phe	Gly	Asn	Ala	Phe	Glu	Asp	Phe	Phe	Gly	Asn	Arg	Gln	Phe		
		275					280					285					
Ala	Ala	Val	Ile	Gly	Gly	Cys	Arg	Pro	Gln	Ala	Gln	Asp	Val	Arg	Ala		
		290				295					300						
Glu	Phe	Val	Ile	Asp	Phe	Leu	Arg	Arg	Asp	Asp	Val	Ala	Asp	Gly	Phe		



Arg Thr Gln Val Phe Arg Ala Glu Arg Asn Xaa Val Phe Tyr Gly Lys  
 115 120 125

Val Glu Xaa Ile Thr Arg Ile Val Ile Ala Cys Gln Thr Leu Leu Gln  
 130 135 140

Leu Thr Cys Gln Tyr His Gly Val Ala Val Asp Phe His His Ile Arg  
 145 150 155 160

Leu Leu His Gly Ile Phe Asn Arg Ile Lys Val Ala Gln Val Gly Lys  
 165 170 175

Gln Lys Ala Gln Gly Ile Ala Asp Thr Ala Val Ala Phe Gly Tyr Ala  
 180 185 190

Phe Glu Asp Phe Phe Gly Asn Arg Gln Phe Ala Ala Val Ile Gly Arg  
 195 200 205

Cys Arg Pro Gln Ala Gln Asp Val Cys Ala Glu Phe Val Ile Asn Leu  
 210 215 220

Leu Arg Cys Asn Asp Val Ala Asp Gly Phe Arg His Phe Phe Ala Phe  
 225 230 235 240

Ala Val Asp Asn Glu Thr Met Gly Gln Gln Leu Phe Ile Arg Arg Ala  
 245 250 255

Thr His

<210> 879  
 <211> 1035  
 <212> DNA  
 <213> Neisseria meningitidis

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 actggcttta gcggcaacgg caagtctgct gcctactttc acttctgctt tagacaccag 180  
 caaagcaaag cgcaattctt cgcccaaagc attcagatag ccggccattt ctccggcg 240  
 ggtaatttcg gcttcgggctt gcaaggacga accgacggtt ttgtcggcgc gcaaaggctc 300  
 gatggcgggcg gttaccgctt cgcgggcttc gcggattgcc gtccattttt tcaccagttc 360  
 ggcttcggct ttttcgttga tggtcgggaa ctctgcca gatatgaaaa gcacgctgtc 420  
 ttctgcgcgc ccgcgatga tgtcccacgc ttcttcgccg gtgaagcaca aaatcggtgc 480  
 aatcaagaga accaggctgc gcgtgatgtg gtacaggggcg gtttgcgcgc tgcggcgggc 540  
 gcggctgtcg gctttgggtg tatagaggcg gtctttcagg atatcgaggt agaacgcgcc 600  
 caagtcttcc gagcagaaag aaaccatttc tttcacggca aagtgaagg cataacgcgg 660  
 ataaaaatca ccggcaacgc gttcttgacg ccgccttgcc aacaccaagg catagcggtc 720  
 gatttccacc atatccgect gttgcacggc atcttcaata ggattgaagt cgctcaagtt 780  
 ggcaaacaaa aagctcaagg tattgcgat acggcggtag ctttcggtta cgcgcttgag 840  
 gatttctttg gaaatcgcca attcgcgct gtaatcggtg gatgcgccc acaggcgag 900  
 gatgtccgcg ccgaactcgt tatacattc ttgcggcgcg acgacgttgc cgatggattt 960  
 cgacattttg cgccggtttt gatccaccac gaaaccatgg gtcagcagct gtttgtacgg 1020  
 cgcgcgaccc attga 1035

<210> 880  
<211> 344  
<212> PRT  
<213> Neisseria meningitidis

<400> 880

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			20					25					30		
Ala	Ala	Phe	Ala	Phe	Phe	Thr	Ile	Thr	Gly	Phe	Ser	Gly	Asn	Gly	Lys
		35					40					45			
Phe	Ala	Ala	Tyr	Phe	His	Phe	Cys	Phe	Arg	His	Gln	Gln	Ser	Lys	Ala
	50					55					60				
Gln	Phe	Phe	Ala	Gln	Ser	Ile	Gln	Ile	Ala	Gly	His	Phe	Phe	Arg	Arg
65					70					75					80
Gly	Asn	Phe	Gly	Phe	Gly	Leu	Gln	Gly	Arg	Thr	Asp	Gly	Phe	Val	Gly
				85					90					95	
Ala	Gln	Arg	Leu	Asp	Gly	Gly	Gly	Tyr	Arg	Phe	Ala	Gly	Phe	Ala	Asp
			100					105					110		
Cys	Arg	Pro	Phe	Phe	His	Gln	Phe	Gly	Phe	Gly	Phe	Phe	Val	Asp	Gly
		115					120						125		
Arg	Glu	Leu	Val	Pro	Ser	Met	Glu	Lys	His	Ala	Val	Phe	Cys	Ala	Ala
	130					135					140				
Ala	Asp	Asp	Val	Pro	Arg	Phe	Phe	Ala	Gly	Glu	Ala	Gln	Asn	Arg	Cys
145					150					155					160
Asn	Gln	Glu	Asn	Gln	Ala	Ala	Arg	Asp	Val	Val	Gln	Gly	Gly	Leu	Arg
				165					170					175	
Ala	Ala	Ala	Gly	Ala	Ala	Val	Gly	Phe	Gly	Gly	Ile	Glu	Ala	Val	Phe
			180					185					190		
Gln	Asp	Ile	Glu	Val	Glu	Arg	Ala	Gln	Val	Phe	Arg	Ala	Glu	Arg	Asn
		195					200					205			
His	Phe	Phe	His	Gly	Lys	Val	Glu	Gly	Ile	Thr	Arg	Ile	Lys	Ile	Thr
	210					215					220				
Gly	Asn	Ala	Phe	Leu	Gln	Pro	Pro	Cys	Gln	His	Gln	Gly	Ile	Ala	Val
225					230					235					240
Asp	Phe	His	His	Ile	Arg	Leu	Leu	His	Gly	Ile	Phe	Asn	Arg	Ile	Glu
				245					250				255		
Val	Ala	Gln	Val	Gly	Lys	Gln	Lys	Ala	Gln	Gly	Ile	Ala	Asp	Thr	Ala

260

265

270

Val Ala Phe Gly Tyr Ala Leu Glu Asp Phe Phe Gly Asn Arg Gln Phe  
 275 280 285

Ala Ala Val Ile Gly Gly Cys Arg Pro Gln Ala Gln Asp Val Arg Ala  
 290 295 300

Glu Leu Val Ile His Phe Leu Arg Arg Asp Asp Val Ala Asp Gly Phe  
 305 310 315 320

Arg His Phe Ala Pro Val Leu Ile His His Glu Thr Met Gly Gln Gln  
 325 330 335

Leu Phe Val Arg Arg Ala Thr His  
 340

&lt;210&gt; 881

&lt;211&gt; 1149

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 881

atgcgggaca aggttggcgg taatatcgca ctccccgccc cacgaatatt cgattctaac 60  
 atcggaagc tgcggaaaaa ctttaagcat atcttggcgg acaagctcgg tcatacgcgc 120  
 aggattgtcg ataaattcgt tacccttacc gccgaaaagc agcctgccgt ccgcgctgag 180  
 gcggttaataa tccaaaatat ggcggttggt gcatactgcc atattgttgc ggataagccc 240  
 ttttgtgcgc gcgccaagg gttcggtggc aataataaag gtgctgacgg caatcgcctt 300  
 gcgttccaaa ggccggaata tcgggttcaa accgacataa gtattgacgg catagaccac 360  
 atttttacac tcgacgctgc cttcgggcgt gtaaaccagc caaccgtttt gatacgggttc 420  
 gatgcgcgtc atcggggatt gctcgaaaat ctgcgcgcgg gcttcggcag cggcgctggc 480  
 aacacccaac gtgtaattga gcggatgaag atgcccgac aagggatcga actgtgcgcc 540  
 ttggtacata tcgctgtcaa gctgctgttt caactcggct ttatcccaa gttgataatg 600  
 actcgacccg taatgccgtt gggcgtgttc atgccactgc tgcaactcct cccaatgctg 660  
 cggacggacg gcaaccgtgg cataaccgcg ctgccaatcg caatcgatgg catgtttgcg 720  
 gacgcgttcg tccaccagtt cgaccgcctg caaagactgt tgccaaaacc attgcgcctg 780  
 ctccaagccg acctgttttt caatttcccc cataccgcag gcgtagtcgc tgataacctg 840  
 cccgccactc ctgccggacg cgccgaagcc gatacgtgcg gcttccaaaa cgacggcttc 900  
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 actaaaataa taagaaggca gatattcttg aaaatcaggg cgaatcattg tgtttgcttt 1080  
 atcgggtata ttttcggacg gaatgataca gactgtcggg ccataatcgtc caaacagaaa 1140  
 atcggttga 1149

&lt;210&gt; 882

&lt;211&gt; 382

&lt;212&gt; PRT

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 882

Met Arg Asp Lys Val Gly Gly Asn Ile Ala Leu Pro Ala Pro Arg Ile  
 1 5 10 15

Phe Asp Ser Asn Ile Gly Lys Leu Arg Lys Asn Phe Lys His Ile Leu

	20						25						30					
Ala	Asp	Lys 35	Leu	Gly	His	Thr	Arg 40	Arg	Ile	Val	Asp	Lys 45	Phe	Val	Ile			
Leu	Thr 50	Ala	Glu	Lys	Gln	Pro 55	Ala	Val	Arg	Ala	Glu 60	Ala	Val	Ile	Ile			
Gln 65	Asn	Met	Ala	Val	Val 70	Ala	Tyr	Cys	His	Ile 75	Val	Ala	Asp	Lys	Pro 80			
Phe	Cys	Ala	Arg	Ala 85	Gln	Gly	Phe	Gly	Gly 90	Asn	Asn	Lys	Gly	Ala 95	Asp			
Gly	Asn	Arg	Leu 100	Ala	Phe	Gln	Arg	Pro 105	Glu	Tyr	Arg	Val	Gln 110	Thr	Asp			
Ile	Ser 115	Ile	Asp	Gly	Ile	Asp	His 120	Ile	Phe	Thr	Leu	Asp 125	Ala	Ala	Phe			
Gly	Arg 130	Val	Asn	Gln	Pro	Thr 135	Val	Leu	Ile	Arg	Phe 140	Asp	Ala	Arg	His			
Arg 145	Gly	Leu	Leu	Glu	Asn 150	Leu	Arg	Ala	Gly	Phe 155	Gly	Ser	Gly	Ala	Gly 160			
Asn	Thr	Gln	Arg	Val 165	Ile	Glu	Arg	Met	Lys 170	Met	Pro	Gly	Gln 175	Gly	Ile			
Glu	Leu	Cys	Ala 180	Leu	Val	His	Ile 185	Ala	Val	Lys	Leu	Leu	Phe 190	Gln	Leu			
Gly	Phe 195	Ile	Pro	Lys	Leu	Ile	Met 200	Thr	Arg	Thr	Val	Met 205	Pro	Leu	Gly			
Val 210	Phe	Met	Pro	Leu	Leu	Gln 215	Leu	Phe	Pro	Met	Leu 220	Arg	Thr	Asp	Gly			
Asn	Arg	Gly	Ile	Thr	Ala	Leu	Pro	Ile	Ala	Ile	Asp	Gly	Met	Phe	Ala			
225					230						235				240			
Asp	Ala	Phe	Val	His 245	Gln	Phe	Asp	Arg	Leu 250	Gln	Arg	Leu	Leu	Pro 255	Lys			
Pro	Leu	Arg	Leu 260	Leu	Gln	Ala	Asp	Leu 265	Phe	Phe	Asn	Phe	Pro 270	His	Thr			
Ala	Gly	Val 275	Val	Ala	Asp	Asn	Leu 280	Pro	Ala	Thr	Pro	Ala 285	Gly	Arg	Ala			
Glu 290	Ala	Asp	Thr	Cys	Gly	Phe 295	Gln	Asn	Asp	Gly	Phe 300	Met	Ser	Val	Phe			
Arg 305	Gln	Arg	Gln	Cys	Gly 310	Thr	Gln	Thr	Ala	Gln 315	Thr	Ala	Ala	Asp	Asn 320			

Ala Gly Phe Gly Phe Gln Thr Ala Leu Glu Phe Arg Ile Asn Ser Met  
325 330 335

Arg Ile Asn Arg Thr Lys Ile Ile Arg Arg Gln Ile Phe Leu Lys Ile  
340 345 350

Arg Ala Asn His Cys Val Cys Phe Ile Gly Tyr Ile Phe Gly Arg Asn  
355 360 365

Asp Thr Asp Cys Arg Ala Ile Ser Ser Lys Gln Lys Ile Gly  
370 375 380

<210> 883  
<211> 1149  
<212> DNA  
<213> Neisseria meningitidis

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aggattgtcg ataaactcgt tatccttacc gccgaaaagc agtctgccgt ccgcgctgag 180  
gcggtataaa tccaaaatat ggcggttgct gcatactgcc atattgttac ggataagccc 240  
ttttgcgcgc gcccacaagg gttcgggtcg aataataaag gtgctgacag caatcgctt 300  
gcgttccaaa ggccggaata tcgggttcaa acctgcataa gtattgacag catagaccac 360  
atttttgcac tcgacgctgc cttcgggcgt gtaaaccagc caaccgtttt gatgcgggtc 420  
gatgcacgtc atcggggatt gtcgaaaaat ctgcgacccg gcttcggcag cggcacgagc 480  
gatgcccaaa gtgtaagtga gcgcatgcag gtgtccgat aaggggtcga attgtgcccc 540  
ttggtacata tcgtgtgcaa gctgctgttt caactcggct ttatcccaaa gttgataatg 600  
actcgacccg taatgccgtt gggcgtgttc atgccactgc tgcaactctt cccaatgctg 660  
cggacggacg gcaaccgtgg cataaccgcg ctgccaatca caatcgacgg catgtttgcg 720  
gacgcgttcg tccaccagtt cgaccgcctg caaagactgt tgccaaaacc attgcgcctg 780  
ctccaagccg acctgttttt caatttcccc cataccgcag ncgtaatcgc tgataacctg 840  
cccgccactc cgtcccgacg gcgcgaaacc gatacgcgcg gtttccaaca caaccgtttc 900  
atgtccctgc tccgccaagg gcaatgcagt gcacaaacca cccaatccgc cgccgatgat 960  
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<210> 884  
<211> 382  
<212> PRT  
<213> Neisseria meningitidis

<400> 884  
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Phe Asp Phe Asp Ile Gly Lys Leu Arg Lys Asn Phe Lys His Ile Leu  
20 25 30

Ala Asp Lys Leu Gly His Thr Leu Arg Ile Val Asp Lys Leu Val Ile  
35 40 45

Leu Thr Ala Glu Lys Gln Ser Ala Val Arg Ala Glu Ala Val Ile Ile

50					55					60					
Gln	Asn	Met	Ala	Val	Val	Ala	Tyr	Cys	His	Ile	Val	Thr	Asp	Lys	Pro
65					70					75					80
Phe	Cys	Ala	Arg	Pro	Gln	Gly	Phe	Gly	Arg	Asn	Asn	Lys	Gly	Ala	Asp
				85					90					95	
Ser	Asn	Arg	Leu	Ala	Phe	Gln	Arg	Pro	Glu	Tyr	Arg	Val	Gln	Thr	Cys
			100					105					110		
Ile	Ser	Ile	Asp	Ser	Ile	Asp	His	Ile	Phe	Ala	Leu	Asp	Ala	Ala	Phe
	115						120					125			
Gly	Arg	Val	Asn	Gln	Pro	Thr	Val	Leu	Met	Arg	Phe	Asp	Ala	Arg	His
	130					135					140				
Arg	Gly	Leu	Leu	Glu	Asn	Leu	Arg	Thr	Gly	Phe	Gly	Ser	Gly	Thr	Ser
145					150					155					160
Asp	Ala	Gln	Ser	Val	Ser	Glu	Arg	Met	Gln	Val	Ser	Gly	Xaa	Gly	Val
				165					170					175	
Glu	Leu	Cys	Pro	Leu	Val	His	Ile	Ala	Val	Lys	Leu	Leu	Phe	Gln	Leu
			180					185					190		
Gly	Phe	Ile	Pro	Lys	Leu	Ile	Met	Thr	Arg	Thr	Val	Met	Pro	Leu	Gly
	195						200					205			
Val	Phe	Met	Pro	Leu	Leu	Gln	Leu	Phe	Pro	Met	Leu	Arg	Thr	Asp	Gly
	210					215					220				
Asn	Arg	Gly	Ile	Thr	Ala	Leu	Pro	Ile	Thr	Ile	Asp	Gly	Met	Phe	Ala
225					230					235					240
Asp	Ala	Phe	Val	His	Gln	Phe	Asp	Arg	Leu	Gln	Arg	Leu	Leu	Pro	Lys
				245					250					255	
Pro	Leu	Arg	Leu	Leu	Gln	Ala	Asp	Leu	Phe	Phe	Asn	Phe	Pro	His	Thr
			260					265					270		
Ala	Xaa	Val	Ile	Ala	Asp	Asn	Leu	Pro	Ala	Thr	Pro	Ser	Arg	Arg	Ala
	275						280					285			
Glu	Thr	Asp	Thr	Arg	Gly	Phe	Gln	His	Asn	Arg	Phe	Met	Ser	Leu	Leu
	290					295					300				
Arg	Gln	Gly	Gln	Cys	Ser	Ala	Gln	Thr	Thr	Gln	Ser	Ala	Ala	Asp	Asp
305					310					315					320
Thr	Gly	Ile	Gly	Phe	Gln	Thr	Ala	Leu	Lys	Phe	Arg	Ile	Asn	Ser	Met
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Arg	Ile	Asn	Arg	Thr	Glu	Ile	Ile	Arg	Arg	Gln	Ile	Phe	Leu	Lys	Ile
			340					345					350		
Arg	Ala	Asn	His	Cys	Val	Cys	Phe	Ile	Arg	Cys	Ile	Phe	Gly	Arg	Asn



355

360

365

Asp Thr Gly Cys Arg Ala Ile Ser Ser Xaa Gln Lys Ile Gly  
 370 375 380

<210> 885  
 <211> 1149  
 <212> DNA  
 <213> Neisseria meningitidis

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 gggattgtcg ataaactcgt tacccttacc gccgaaaagc agtctgccgt ccgcgctgag 180  
 gcggtaataa tccaaaatat gacggttgtc gcatactgcc atattgttgc ggataagccc 240  
 ttttgcacgc gcgcccgaagg gttctgtggc aataataaag gtgctgacag caatcgctt 300  
 gcgctccaaa ggcttgaata tcggattcaa accggcataa gtattgacgg cgtacaccag 360  
 atttttgcat tcgacgctgc cttcgggggt gtaaaccagc caaccgtttt gataaggttc 420  
 aatgcgtatc atgggagaat gctcaaaaat cttcgtacca gcttcggcag cggcgcgggc 480  
 gatgcccac gtgtaattga gcggatggag atgcccggac aagggatcga actgtgcgcc 540  
 ttggtacata tcgctgtcaa gctgctgctt cagttcagtg ttatcccaga gttgataatg 600  
 agttgcaccg taatatTTTT gggcgtgctc atgccattgt tgcaattctt cccaatgctg 660  
 cgaacggatg gcaaccgtgg cataaccgcg ctgccaatcg caatcaatgg catgtttgcg 720  
 gacgcgttcg tccaccagtt cgaccgcctg caaagactgt tgccaaaacc attgcgcttg 780  
 ctccaaaccg acctgttttt caatttcctc cataccgcag gcgtaatcgc tgataacctg 840  
 cccgccactc cgtcccgcag cgccgaaacc gatacgcgcg gcttccaaca caaccgtttc 900  
 atgtccctgc tcgcgcaagg gcaatgcagt gcacaaacca ctcaatccgc cgccgatgat 960  
 acaggtatcg gttttcagac ggcattgaag tttcggataa acagtatgag gattaaccga 1020  
 actgaaataa taagaaggca gatattcttg aaaatcaggg cgaatcattg tgtttgcttt 1080  
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<210> 886  
 <211> 382  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 886  
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 Phe Asp Phe Asp Ile Gly Lys Leu Arg Lys Asn Phe Lys His Ile Leu  
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 Ala Asp Lys Leu Gly His Thr Arg Gly Ile Val Asp Lys Leu Val Ile  
 35 40 45  
 Leu Thr Ala Glu Lys Gln Ser Ala Val Arg Ala Glu Ala Val Ile Ile  
 50 55 60  
 Gln Asn Met Thr Val Val Ala Tyr Cys His Ile Val Ala Asp Lys Pro  
 65 70 75 80  
 Phe Cys Thr Arg Ala Gln Gly Phe Cys Gly Asn Asn Lys Gly Ala Asp  
 85 90 95

Ser Asn Arg Leu Ala Leu Gln Arg Leu Glu Tyr Arg Ile Gln Thr Gly  
 100 105 110  
 Ile Ser Ile Asp Gly Val His Gln Ile Phe Ala Phe Asp Ala Ala Phe  
 115 120 125  
 Gly Gly Val Asn Gln Pro Thr Val Leu Ile Arg Phe Asn Ala Tyr His  
 130 135 140  
 Gly Arg Met Leu Lys Asn Leu Arg Thr Ser Phe Gly Ser Gly Ala Gly  
 145 150 155 160  
 Asp Ala Gln Arg Val Ile Glu Arg Met Glu Met Pro Gly Gln Gly Ile  
 165 170 175  
 Glu Leu Cys Ala Leu Val His Ile Ala Val Lys Leu Leu Leu Gln Phe  
 180 185 190  
 Ser Val Ile Pro Glu Leu Ile Met Ser Cys Thr Val Ile Phe Leu Gly  
 195 200 205  
 Val Leu Met Pro Leu Leu Gln Phe Phe Pro Met Leu Arg Thr Asp Gly  
 210 215 220  
 Asn Arg Gly Ile Thr Ala Leu Pro Ile Ala Ile Asn Gly Met Phe Ala  
 225 230 235 240  
 Asp Ala Phe Val His Gln Phe Asp Arg Leu Gln Arg Leu Leu Pro Lys  
 245 250 255  
 Pro Leu Arg Leu Leu Gln Thr Asp Leu Phe Phe Asn Phe Leu His Thr  
 260 265 270  
 Ala Gly Val Ile Ala Asp Asn Leu Pro Ala Thr Pro Ser Arg Arg Ala  
 275 280 285  
 Glu Thr Asp Thr Arg Gly Phe Gln His Asn Arg Phe Met Ser Leu Leu  
 290 295 300  
 Arg Gln Gly Gln Cys Ser Ala Gln Thr Thr Gln Ser Ala Ala Asp Asp  
 305 310 315 320  
 Thr Gly Ile Gly Phe Gln Thr Ala Leu Lys Phe Arg Ile Asn Ser Met  
 325 330 335  
 Arg Ile Asn Arg Thr Glu Ile Ile Arg Arg Gln Ile Phe Leu Lys Ile  
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 Arg Ala Asn His Cys Val Cys Phe Ile Gly Tyr Ile Phe Gly Arg Asn  
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 370 375 380

<211> 1497  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 887  
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 gcagacggat atgacggggc tcaaggcggc ggttatccgg aaccacaagg ggcaagggat 480  
 atatacagct accatatcaa aggaacttca accaaaacaa agataaacac tgttccgcaa 540  
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 gatggggaga tggcaggggg gaatagaccg cctaaatcta taacgtcgga aggaaaagct 1140  
 aatgctgcaa cctatcctaa gttggttaat cagctaaatg agcaaaactt aaataacatt 1200  
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<210> 888  
 <211> 498  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 888  
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 Leu Arg Asp Asp Met Gln Ala Lys His Tyr Glu Pro Gly Gly Lys Tyr  
 35 40 45  
 His Leu Phe Gly Asn Ala Arg Gly Ser Val Lys Asn Arg Val Cys Ala  
 50 55 60  
 Val Gln Thr Phe Asp Ala Thr Ala Val Gly Pro Ile Leu Pro Ile Thr  
 65 70 75 80  
 His Glu Arg Thr Gly Phe Glu Gly Val Ile Gly Tyr Glu Thr His Phe  
 85 90 95  
 Ser Gly His Gly His Glu Val His Ser Pro Phe Asp Asn His Asp Ser

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115	120	125
Tyr Gln Leu His Arg Thr Gly Ser Glu Ile His Pro Ala Asp Gly Tyr		
130	135	140
Asp Gly Pro Gln Gly Gly Gly Tyr Pro Glu Pro Gln Gly Ala Arg Asp		
145	150	155
Ile Tyr Ser Tyr His Ile Lys Gly Thr Ser Thr Lys Thr Lys Ile Asn		
165	170	175
Thr Val Pro Gln Ala Pro Phe Ser Asp Arg Trp Leu Lys Glu Asn Ala		
180	185	190
Gly Ala Ala Ser Gly Phe Leu Ser Arg Ala Asp Glu Ala Gly Lys Leu		
195	200	205
Ile Trp Glu Asn Asp Pro Asp Lys Asn Trp Arg Ala Asn Arg Met Asp		
210	215	220
Asp Ile Arg Gly Ile Val Gln Gly Ala Val Asn Pro Phe Leu Thr Gly		
225	230	235
Phe Gln Gly Val Gly Ile Gly Ala Ile Thr Asp Ser Ala Val Ser Pro		
245	250	255
Val Thr Asp Thr Ala Ala Gln Gln Thr Leu Gln Gly Ile Asn Asp Leu		
260	265	270
Gly Asn Leu Ser Pro Glu Ala Gln Leu Ala Ala Ala Ser Leu Leu Gln		
275	280	285
Asp Ser Ala Phe Ala Val Lys Asp Gly Ile Asn Ser Ala Arg Gln Trp		
290	295	300
Ala Asp Ala His Pro Asn Ile Thr Ala Thr Ala Gln Thr Ala Leu Ala		
305	310	315
Val Ala Glu Ala Ala Gly Thr Val Trp Arg Gly Lys Lys Val Glu Leu		
325	330	335
Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Lys Pro		
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Ala Ala Arg His Met Gln Thr Val Asp Gly Glu Met Ala Gly Gly Asn		
355	360	365
Arg Pro Pro Lys Ser Ile Thr Ser Glu Gly Lys Ala Asn Ala Ala Thr		
370	375	380
Tyr Pro Lys Leu Val Asn Gln Leu Asn Glu Gln Asn Leu Asn Asn Ile		
385	390	395
Ala Ala Gln Asp Pro Arg Leu Ser Leu Ala Ile His Glu Gly Lys Lys		

405

410

415

Asn Phe Pro Ile Gly Thr Ala Thr Tyr Glu Glu Ala Asp Arg Leu Gly  
 420 425 430

Lys Ile Trp Val Gly Glu Gly Ala Arg Gln Thr Ser Gly Gly Gly Trp  
 435 440 445

Leu Ser Arg Asp Gly Thr Arg Gln Tyr Arg Pro Pro Thr Glu Lys Lys  
 450 455 460

Ser Gln Phe Ala Thr Thr Gly Ile Gln Ala Asn Phe Glu Thr Tyr Thr  
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Ile Asp Ser Asn Glu Lys Arg Asn Lys Ile Lys Asn Gly His Leu Asn  
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Ile Arg

<210> 889

<211> 1452

<212> DNA

<213> *Neisseria meningitidis*

<400> 889

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cgggttttacg ccgtccagac atttgatgca actgcggtca gtcctgtact gcctattaca 240
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agaatccatg ataattcacg aaaacagtat cttgattcaa atggtaatgc tgtgaaaacc 1380
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<210> 890

<211> 483

<212> PRT

<213> Neisseria meningitidis

<400> 890

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			20					25					30			
Leu	Arg	Asp	Asp	Met	Gln	Ala	Lys	His	Tyr	Glu	Pro	Gly	Gly	Lys	Tyr	
		35					40					45				
His	Leu	Phe	Gly	Asn	Ala	Arg	Gly	Ser	Val	Lys	Lys	Arg	Val	Tyr	Ala	
	50					55					60					
Val	Gln	Thr	Phe	Asp	Ala	Thr	Ala	Val	Ser	Pro	Val	Leu	Pro	Ile	Thr	
	65				70					75					80	
His	Glu	Arg	Thr	Gly	Phe	Glu	Gly	Val	Ile	Gly	Tyr	Glu	Thr	His	Phe	
				85					90					95		
Ser	Gly	His	Gly	His	Glu	Val	His	Ser	Pro	Phe	Asp	His	His	Asp	Ser	
			100					105					110			
Lys	Ser	Thr	Ser	Asp	Phe	Ser	Gly	Gly	Val	Asp	Gly	Gly	Phe	Thr	Val	
		115					120					125				
Tyr	Gln	Leu	His	Arg	Thr	Gly	Ser	Glu	Ile	His	Pro	Glu	Asp	Gly	Tyr	
	130					135					140					
Asp	Gly	Pro	Gln	Gly	Ser	Asp	Tyr	Pro	Pro	Pro	Gly	Gly	Ala	Arg	Asp	
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				165					170					175		
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			180					185					190			
Gly	Ala	Ala	Ser	Gly	Phe	Phe	Ser	Arg	Ala	Asp	Glu	Ala	Gly	Lys	Leu	
		195					200					205				
Ile	Trp	Glu	Ser	Asp	Pro	Asn	Lys	Asn	Trp	Trp	Ala	Asn	Arg	Met	Asp	
	210					215					220					
Asp	Val	Arg	Gly	Ile	Val	Gln	Gly	Ala	Val	Asn	Pro	Phe	Leu	Met	Gly	
225					230					235					240	
Phe	Gln	Gly	Val	Gly	Ile	Gly	Ala	Ile	Thr	Asp	Ser	Ala	Val	Ser	Pro	
				245					250					255		
Val	Thr	Asp	Thr	Ala	Ala	Gln	Gln	Thr	Leu	Gln	Gly	Ile	Asn	Asp	Leu	
			260					265					270			
Gly	Lys	Leu	Ser	Pro	Glu	Ala	Gln	Leu	Ala	Ala	Ala	Ser	Leu	Leu	Gln	

275	280	285
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Ala Asp Ala His Pro Asn Ile Thr Ala Thr Ala Gln Thr Ala Leu Ser 305 310 315 320		
Ala Ala Glu Ala Ala Gly Thr Val Trp Arg Gly Lys Lys Val Glu Leu 325 330 335		
Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Lys Pro 340 345 350		
Ala Ala Arg His Met Gln Thr Leu Asp Gly Glu Met Ala Gly Gly Asn 355 360 365		
Lys Pro Ile Lys Ser Leu Pro Asn Ser Ala Ala Glu Lys Arg Lys Gln 370 375 380		
Asn Phe Glu Lys Phe Asn Ser Asn Trp Ser Ser Ala Ser Phe Asp Ser 385 390 395 400		
Val His Lys Thr Leu Thr Pro Asn Ala Pro Gly Ile Leu Ser Pro Asp 405 410 415		
Lys Val Lys Thr Arg Tyr Thr Ser Leu Asp Gly Lys Ile Thr Ile Ile 420 425 430		
Lys Asp Asn Glu Asn Asn Tyr Phe Arg Ile His Asp Asn Ser Arg Lys 435 440 445		
Gln Tyr Leu Asp Ser Asn Gly Asn Ala Val Lys Thr Gly Asn Leu Gln 450 455 460		
Gly Lys Gln Ala Lys Asp Tyr Leu Gln Gln Gln Thr His Ile Arg Asn 465 470 475 480		
Leu Asp Lys		

<210> 891  
 <211> 1155  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 891  
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 cgggttttac cgtccaaac atttgatgca actgcggtcg gccccatact gcctattaca 240  
 cacgaacgga caggatttga aggcattatc ggttatgaaa ccattttttc aggacatgga 300  
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 ggcgtagacg gtggttttac cgtttaccaa cttcatcgga cagggtcgga aatccatccg 420  
 gaggatggat atgacgggcc gcaaggcagc gattatccgc cccccggagg agcaagggat 480  
 atatacagct actatgtcaa aggaacttca acaaaaacaa agagtaatat tgttccccga 540

gccccatttt cagaccgctg gctaaaagaa aatgccggtg ccgcctctgg ttttttcagc 600  
cgtgctgatg aagcaggaaa actgatatgg gaaagcgacc ccaataaaaa ttggtgggct 660  
  
aaccgtatgg atgatattcg cggcatcgtc caaggtgcggt ttaatccttt tttaatgggt 720  
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<210> 892

<211> 385

<212> PRT

<213> Neisseria meningitidis

<400> 892

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20 25 30

Leu Arg Asp Asp Met Gln Ala Lys His Tyr Glu Pro Gly Gly Lys Tyr  
35 40 45

His Leu Phe Gly Asn Ala Arg Gly Ser Val Lys Asn Arg Val Tyr Ala  
50 55 60

Val Gln Thr Phe Asp Ala Thr Ala Val Gly Pro Ile Leu Pro Ile Thr  
65 70 75 80

His Glu Arg Thr Gly Phe Glu Gly Ile Ile Gly Tyr Glu Thr His Phe  
85 90 95

Ser Gly His Gly His Glu Val His Ser Pro Phe Asp Asn His Asp Ser  
100 105 110

Lys Ser Thr Ser Asp Phe Ser Gly Gly Val Asp Gly Gly Phe Thr Val  
115 120 125

Tyr Gln Leu His Arg Thr Gly Ser Glu Ile His Pro Glu Asp Gly Tyr  
130 135 140

Asp Gly Pro Gln Gly Ser Asp Tyr Pro Pro Pro Gly Gly Ala Arg Asp  
145 150 155 160

Ile Tyr Ser Tyr Tyr Val Lys Gly Thr Ser Thr Lys Thr Lys Ser Asn  
165 170 175

Ile Val Pro Arg Ala Pro Phe Ser Asp Arg Trp Leu Lys Glu Asn Ala  
180 185 190

Gly Ala Ala Ser Gly Phe Phe Ser Arg Ala Asp Glu Ala Gly Lys Leu



195                      200                      205  
 Ile Trp Glu Ser Asp Pro Asn Lys Asn Trp Trp Ala Asn Arg Met Asp  
     210                      215                      220  
 Asp Ile Arg Gly Ile Val Gln Gly Ala Val Asn Pro Phe Leu Met Gly  
     225                      230                      235                      240  
 Phe Gln Gly Val Gly Ile Gly Ala Ile Thr Asp Ser Ala Val Ser Pro  
                                  245                      250                      255  
 Val Thr Asp Thr Ala Ala Gln Gln Thr Leu Gln Gly Ile Asn His Leu  
                                  260                      265                      270  
 Gly Asn Leu Ser Pro Glu Ala Gln Leu Ala Ala Thr Ala Leu Gln  
                                  275                      280                      285  
 Asp Ser Ala Phe Ala Val Lys Asp Gly Ile Asn Ser Ala Arg Gln Trp  
                                  290                      295                      300  
  
 Ala Asp Ala His Pro Asn Ile Thr Ala Thr Ala Gln Thr Ala Leu Ala  
     305                      310                      315                      320  
 Val Ala Glu Ala Ala Thr Thr Val Trp Gly Gly Lys Lys Val Glu Leu  
                                  325                      330                      335  
 Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Thr Pro  
                                  340                      345                      350  
 Ala Val Arg Thr Met His Thr Leu Asp Gly Glu Met Ala Gly Gly Asn  
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 Arg Pro Pro Lys Ser Ile Thr Ser Asn Ser Lys Ala Asp Ala Ser Thr  
                                  370                      375                      380  
  
 Gln  
 385

<210> 893  
 <211> 768  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

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 gcttcacccg gctttaatgc cctgcccacg attttcaggg gcggatcggg caaatccgct 420  
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 agacggcaca tgacctgcgg caataccgcc cctacttctt caagctcgcg gttaataaag 600  
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ttttgtgccg cgatctgcgc cagcttgccg gttgtatcga ttggactttc cgcccgttgc 720  
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<210> 894  
<211> 255  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 894

Met	Phe	His	His	Lys	Gly	Ile	Ala	Arg	Asn	Arg	Arg	Met	Glu	Val	Leu	1	5	10	15
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Leu	Gln	Pro	His	Leu	Arg	Ile	Ile	Leu	Leu	Gln	Gly	Asp	Phe	Leu	Phe	35	40	45	
Phe	Arg	Leu	Val	Gln	Ser	Cys	Glu	Val	Glu	Pro	Val	Leu	Val	Leu	Leu	50	55	60	
His	His	Asn	Gly	Lys	Ser	Gly	Asn	Ala	His	Arg	Lys	Gln	Gln	Lys	Glu	65	70	75	80
Ile	Arg	Phe	Val	His	Cys	Arg	Ser	Asp	Val	Phe	Leu	Cys	Tyr	Tyr	Ser	85	90	95	
Gly	Ile	Gly	Pro	Ala	Val	Arg	Ser	Ala	Thr	Arg	Lys	Thr	Ala	Leu	Leu	100	105	110	
Ala	Leu	Gly	Leu	Ala	Ala	Ile	Ser	Ala	Ser	Pro	Gly	Phe	Asn	Ala	Leu	115	120	125	
Pro	Thr	Ile	Phe	Arg	Gly	Gly	Ser	Gly	Lys	Ser	Ala	Ser	Leu	Thr	Ala	130	135	140	
Ala	Gln	Leu	Gly	Arg	Gly	Ser	Cys	Cys	Glu	Tyr	Phe	Leu	Thr	Asn	Cys	145	150	155	160
Phe	Thr	Met	Arg	Ser	Ser	Asn	Glu	Trp	Lys	Ala	Met	Thr	Ala	Lys	Arg	165	170	175	
Pro	Pro	Ser	Phe	Arg	Arg	His	Met	Thr	Cys	Gly	Asn	Thr	Ala	Pro	Thr	180	185	190	
Ser	Ser	Ser	Ser	Arg	Leu	Ile	Lys	Met	Arg	Ile	Ala	Trp	Lys	Val	Arg	195	200	205	
Val	Ala	Gly	Ser	Cys	Pro	Arg	Ser	Arg	Val	Arg	Thr	Phe	Cys	Ala	Thr	210	215	220	
Ile	Cys	Ala	Ser	Leu	Arg	Val	Val	Ser	Ile	Gly	Leu	Ser	Ala	Arg	Cys	225	230	235	240
Ala	Thr	Met	Ala	Arg	Thr	Ile	Trp	Arg	Leu	Asn	Arg	Ser	Ser	Pro					

<210> 895  
 <211> 768  
 <212> DNA  
 <213> *Neisseria meningitidis*

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 gcagtcgct cgcgcacacg caaaaccgca cttctcgccc tcggattggc ggcaatttcc 360  
 gcctcacccg gctttaatgc cctgcccacg attttcaggg gcagctcggg caaatccgct 420  
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 ttcacaatgc gatcttccaa cgaatggaaa gcaatgaccg ccaaacgtcc gccctctttc 540  
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 ttttgtgcca cgatctgcgc cagcttgcgg gttgtatoga ttggactttc cggccgttgc 720  
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<210> 896  
 <211> 255  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 896  
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 Leu Gln Pro His Leu Arg Ile Ile Leu Leu Gln Gly Asp Phe Leu Phe  
 35 40 45  
 Phe Arg Leu Ile Gln Ser Cys Glu Ile Glu Pro Val Leu Val Leu Leu  
 50 55 60  
 His His Asn Gly Lys Ser Gly Asn Ala His Arg Lys Gln Gln Lys Glu  
 65 70 75 80  
 Ile Gln Phe Val His Cys His Ser Asp Val Phe Leu Cys Asp Cys Ser  
 85 90 95  
 Gly Ile Gly Pro Ala Val Arg Ser Ala Thr Arg Lys Thr Ala Leu Leu  
 100 105 110  
 Ala Leu Gly Leu Ala Ala Ile Ser Ala Ser Pro Gly Phe Asn Ala Leu  
 115 120 125  
 Pro Thr Ile Phe Arg Gly Ser Ser Gly Lys Ser Ala Ser Leu Thr Ala  
 130 135 140

Ala Gln Arg Gly Arg Gly Ala Cys Cys Glu Tyr Phe Leu Thr Asn Cys  
 145 150 155 160

Phe Thr Met Arg Ser Ser Asn Glu Trp Lys Ala Met Thr Ala Lys Arg  
 165 170 175

Pro Pro Ser Phe Arg Arg His Met Thr Cys Gly Asn Thr Ala Pro Thr  
 180 185 190

Ser Ser Ser Ser Arg Leu Ile Lys Met Arg Thr Ala Trp Lys Val Arg  
 195 200 205

Val Ala Gly Ser Cys Pro Arg Ser Arg Val Arg Thr Phe Cys Ala Thr  
 210 215 220

Ile Cys Ala Ser Leu Arg Val Val Ser Ile Gly Leu Ser Ala Arg Cys  
 225 230 235 240

Ala Thr Met Ala Arg Ala Ile Arg Arg Leu Asn Arg Ser Ser Pro  
 245 250 255

<210> 897  
 <211> 768  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 897  
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 cgccctgatc gcttcgtggt tcgccaaacg cgccgtgtgc agcctcattt gcgcataatc 120  
 ctgctccaag gcgatttcct gttttttcgc cttatccaaa gctgtgaagt tgagcctgta 180  
 ctggttttgc tgcattcaca cggaaaaagc ggaaacgcac accgcaagca gcagaaggaa 240  
 attcaatttg ttcatcgcca ttccagacgtt tttctctgtg attgttcggt tatcggaccg 300  
 gcagtccgct ccgccacacg caaaaccgca cttctcgcgc tcggattggc ggcaatttcc 360  
 gctcaccg gctttaatgc cctgcccgcg attttcaggg gcggctcggg caaatccgct 420  
 tcctgaccg ccgcccagcg cggcaggggc gcgtgttgcg aatatttttt gacaaactgc 480  
 ttcacaatgc ggtcttccaa cgaatggaaa gcaatgaccg ccaaacgtcc gccctctttc 540  
 agacgacaca tgacctgcgg caatactgcc cctacttctt caagctcgcg gttaataaag 600  
 atgcggattg cctggaaggt gcgcgtcgca ggatcctgcc cccgctcgcg agtacggacg 660  
 tttgtgcca cgatctgcgc cagcttgcg gttgtatcga ttggactttc cgcccgttgc 720  
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<210> 898  
 <211> 255  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 898  
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Phe Phe Cys Arg Arg Pro Asp Arg Phe Val Val Arg Gln Thr Arg Leu  
 20 25 30

Leu Gln Pro His Leu Arg Ile Ile Leu Leu Gln Gly Asp Phe Leu Phe

35					40					45					
Phe	Arg	Leu	Ile	Gln	Ser	Cys	Glu	Val	Glu	Pro	Val	Leu	Val	Leu	Leu
50					55					60					
His	His	Asn	Gly	Lys	Ser	Gly	Asn	Ala	His	Arg	Lys	Gln	Gln	Lys	Glu
65					70					75					80
Ile	Gln	Phe	Val	His	Cys	His	Ser	Asp	Val	Phe	Leu	Cys	Asp	Cys	Ser
				85					90					95	
Gly	Ile	Gly	Pro	Ala	Val	Arg	Ser	Ala	Thr	Arg	Lys	Thr	Ala	Leu	Leu
			100					105					110		
Ala	Leu	Gly	Leu	Ala	Ala	Ile	Ser	Ala	Ser	Pro	Gly	Phe	Asn	Ala	Leu
		115					120					125			
Pro	Ala	Ile	Phe	Arg	Gly	Gly	Ser	Gly	Lys	Ser	Ala	Ser	Leu	Thr	Ala
	130					135					140				
Ala	Gln	Arg	Gly	Arg	Gly	Ala	Cys	Cys	Glu	Tyr	Phe	Leu	Thr	Asn	Cys
145					150					155					160
Phe	Thr	Met	Arg	Ser	Ser	Asn	Glu	Trp	Lys	Ala	Met	Thr	Ala	Lys	Arg
			165						170					175	
Pro	Pro	Ser	Phe	Arg	Arg	His	Met	Thr	Cys	Gly	Asn	Thr	Ala	Pro	Thr
			180					185					190		
Ser	Ser	Ser	Ser	Arg	Leu	Ile	Lys	Met	Arg	Ile	Ala	Trp	Lys	Val	Arg
		195					200					205			
Val	Ala	Gly	Ser	Cys	Pro	Arg	Ser	Arg	Val	Arg	Thr	Phe	Cys	Ala	Thr
	210					215					220				
Ile	Cys	Ala	Ser	Leu	Arg	Val	Val	Ser	Ile	Gly	Leu	Ser	Ala	Arg	Cys
225					230					235					240
Ala	Thr	Met	Ala	Arg	Ala	Ile	Trp	Arg	Leu	Asn	Arg	Ser	Ser	Pro	
			245						250					255	

<210> 899

<211> 663

<212> DNA

<213> Neisseria gonorrhoeae

<400> 899

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atgatagaag tcatacatatt cttcggcgcgc gaaacgcgcga gacagtttgc ttgtgccgac 60
gttgacgat ttctgcataa tgccgcgcac atccaaagag gggtaaacad gggatatcatc 120
gcgacaggga gacggtccga tttataagg ctgcgtattc agccgttcgt tcaaatacgg 180
tttgcccgca tccaatgcct tcgcaatcac gaacggtttg attgccgaac caggttcgat 240
catatcggtt acggcacggt tgcgccgctg ttgcgtgtct gcccgccgg gtctgttggg 300
atcgtaggcg ggcgtattgg ccaaggcgag gatttcccc gtgcgggcat ccaaaaccac 360
caccgttccg gcttttgcct gatggtattc gaccgccttg ttcaactctt cataggccaa 420
ggctctgaatc ctctgatcga gggaaaggat gatgtctttg ccgttttgcg gtgctttatt 480
gcgcggggag tccaagctgt ccacaatatt gcctgcccgg tcccgcaaaa caacttccgc 540

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gccgtcttcg ccatacaggc tgtcttcaag cgaaagttcc aaaccttcct gacctttgcc 600
gtcaatatcg gtaaattccga tgacgtgtgc aaacaggttg cccatcggtt aatggcggtt 660
taa                                                    663

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<210> 900
<211> 220
<212> PRT
<213> Neisseria gonorrhoeae

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<400> 900
Met Ile Glu Val Ile His Phe Phe Gly Ala Glu Thr Arg Arg Gln Phe
 1           5           10           15

Ala Cys Ala Asp Val Gly Arg Phe Leu His Asn Ala Ala His Ile Gln
 20           25           30

Arg Gly Val Asn Met Gly Ile Ile Ala His Gly Arg Arg Ser Asp Phe
 35           40           45

Ile Arg Leu Arg Ile Gln Pro Phe Val Gln Ile Gly Phe Ala Arg Ile
 50           55           60

Gln Cys Leu Arg Asn His Glu Arg Phe Asp Cys Arg Thr Arg Phe Asp
 65           70           75           80

His Ile Gly Tyr Gly Thr Val Ala Pro Leu Phe Ala Val Cys Pro Ala
 85           90           95

Gly Ser Val Gly Ile Val Gly Gly Arg Ile Gly Gln Gly Glu Asp Phe
100           105           110

Pro Arg Ala Gly Ile Gln Asn His His Arg Ser Gly Phe Cys Leu Met
115           120           125

Val Phe Asp Arg Leu Val Gln Leu Phe Ile Gly Gln Gly Leu Asn Pro
130           135           140

Leu Ile Glu Gly Lys Asp Asp Val Phe Ala Val Leu Arg Cys Phe Ile
145           150           155           160

Ala Arg Gly Val Gln Ala Val His Asn Ile Ala Leu Pro Val Pro Gln
165           170           175

Asn Asn Phe Arg Ala Val Phe Ala Ile Gln Ala Val Phe Lys Arg Lys
180           185           190

Phe Gln Thr Phe Leu Thr Phe Ala Val Asn Ile Gly Lys Ser Asp Asp
195           200           205

Val Cys Lys Gln Val Ala His Arg Val Met Ala Phe
210           215           220

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<210> 901
<211> 660
<212> DNA

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<213> Neisseria meningitidis

<400> 901

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gttggacgat ttctgcatga tgccgcgcac atccaaagag gggtaaacad gggatatcgcg 120
cacgggagac ggtccgattt tataaggctg cgtattcagc cgttcgttca aatcgggtttt 180
gcccgcatcc aatgccttcg caatcacaaa cggtttgatt gccgaaccgg gttcgatcat 240
atcggttacg gcacggttgc gccgctgttc gctgtctgcc cggccggggc tgttgggatc 300
gtaggcgggc gtattggcca aggcgaggat ttccccctg cgggcatcca araccaccac 360
cgttccggct tttgcctgat ggtattcgac cgccttgttc aactcttcat aggccaaggt 420
ctgaatcctc tgatcgaggg aaaggatgat gtctttgccg tttttcgggg ctttaktgcg 480
cggggagtcc aagctgtcca caatattgcc ctgccggtcc cgcaaaacga cttccgcgcc 540
gtcttcgcca tgcaagctgt cttcaagcga aagttccaaa ccttcctgac ctttgccgtc 600
aatatcggtg aatccgatga cgtgtgcaaa caggttgccc atcgggtaat ggcgttttaa 660
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<210> 902

<211> 219

<212> PRT

<213> Neisseria meningitidis

<400> 902

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Met Ile Glu Val Ile His Phe Phe Gly Thr Glu Thr Arg Arg Gln Phe
  1             5             10             15

Ala Cys Ala Asp Val Gly Arg Phe Leu His Asp Ala Ala His Ile Gln
      20             25             30

Arg Gly Val Asn Met Gly Ile Ala His Gly Arg Arg Ser Asp Phe Ile
      35             40             45

Arg Leu Arg Ile Gln Pro Phe Val Gln Ile Gly Phe Ala Arg Ile Gln
      50             55             60

Cys Leu Arg Asn His Lys Arg Phe Asp Cys Arg Thr Gly Phe Asp His
      65             70             75             80

Ile Gly Tyr Gly Thr Val Ala Pro Leu Phe Ala Val Cys Pro Ala Gly
      85             90             95

Pro Val Gly Ile Val Gly Gly Arg Ile Gly Gln Gly Glu Asp Phe Pro
      100            105            110

Arg Ala Gly Ile Gln Xaa His His Arg Ser Gly Phe Cys Leu Met Val
      115            120            125

Phe Asp Arg Leu Val Gln Leu Phe Ile Gly Gln Gly Leu Asn Pro Leu
      130            135            140

Ile Glu Gly Lys Asp Asp Val Phe Ala Val Phe Arg Gly Phe Xaa Ala
      145            150            155            160

Arg Gly Val Gln Ala Val His Asn Ile Ala Leu Pro Val Pro Gln Asn
      165            170            175

Asp Phe Arg Ala Val Phe Ala Met Gln Ala Val Phe Lys Arg Lys Phe
      180            185            190
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Gln Thr Phe Leu Thr Phe Ala Val Asn Ile Gly Lys Ser Asp Asp Val  
 195 200 205

Cys Lys Gln Val Ala His Arg Val Met Ala Phe  
 210 215

<210> 903  
 <211> 660  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 903  
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 gttggacgat ttctgcatga tgccgcgcac atccaaagag gggtaaacad gggatatcgcg 120  
 cacgggagac ggtccgattt tataaggctg cgtattcagc cgttcggttca aatcggtttt 180  
 gcccgcatcc aatgccttcg caatcacaaa cggtttgatt gccgaaccgg gttcgatcat 240  
 atcggttacg gcacgggttg gccgctgttc gctgtctgcc cggccggggc tgttgggac 300  
 gtaggcgggc gtattggcca aggcgaggat ttcccccggtg cgggcatcca aaaccaccac 360  
 cgttccgggt tttgcctgat ggtattcgac cgccttggtc aactcttcat aggccaaggt 420  
 ctgaatcctc tgatcgaggg aaaggatgat gtctttgccc tttttcgggg ctttattgcg 480  
 cggggagtc aagctgtcca caatattgcc ctgccgggtc cgcaaaacga cttccgcgcc 540  
 gtcttcgcca tgcaggctgt cttcaagcga aagttccaaa ccttcctgac ctttgccgctc 600  
 aatatcggt aatccgatga cgtgtgcaaa caggttgccc atcgggtaat ggcgttttaa 660

<210> 904  
 <211> 219  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 904  
 Met Ile Glu Val Ile His Phe Phe Gly Thr Glu Thr Arg Arg Gln Phe  
 1 5 10 15  
 Ala Cys Ala Asp Val Gly Arg Phe Leu His Asp Ala Ala His Ile Gln  
 20 25 30  
 Arg Gly Val Asn Met Gly Ile Ala His Gly Arg Arg Ser Asp Phe Ile  
 35 40 45  
 Arg Leu Arg Ile Gln Pro Phe Val Gln Ile Gly Phe Ala Arg Ile Gln  
 50 55 60  
 Cys Leu Arg Asn His Lys Arg Phe Asp Cys Arg Thr Gly Phe Asp His  
 65 70 75 80  
 Ile Gly Tyr Gly Thr Val Ala Pro Leu Phe Ala Val Cys Pro Ala Gly  
 85 90 95  
 Pro Val Gly Ile Val Gly Gly Arg Ile Gly Gln Gly Glu Asp Phe Pro  
 100 105 110  
 Arg Ala Gly Ile Gln Asn His His Arg Ser Gly Phe Cys Leu Met Val  
 115 120 125



Phe Asp Arg Leu Val Gln Leu Phe Ile Gly Gln Gly Leu Asn Pro Leu  
 130 135 140  
 Ile Glu Gly Lys Asp Asp Val Phe Ala Val Phe Arg Gly Phe Ile Ala  
 145 150 155 160  
 Arg Gly Val Gln Ala Val His Asn Ile Ala Leu Pro Val Pro Gln Asn  
 165 170 175  
 Asp Phe Arg Ala Val Phe Ala Met Gln Ala Val Phe Lys Arg Lys Phe  
 180 185 190  
 Gln Thr Phe Leu Thr Phe Ala Val Asn Ile Gly Lys Ser Asp Asp Val  
 195 200 205  
 Cys Lys Gln Val Ala His Arg Val Met Ala Phe  
 210 215

<210> 905  
 <211> 660  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 905  
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 gttggacgat ttctgcatga tgccgcgcac atccaaagag gggtaaacaT gggtatcgcg 120  
 cacgggagac ggtccgattt tataaggctg cgtattcagc cgttcgttca aatcggtttt 180  
 gcccgcatcc aatgccttcg caatcacaaa cggttttgatt gccgaaccgg gttcgatcat 240  
 atcggttacg gcacggttgc gccgctgttc gctgtctgcc cggccggggc tgttgggac 300  
 gtaggcgggc gtattggcca aggcgaggat ttcccccgTg cgggcatcca araccaccac 360  
 cgttccggct tttgcctgat ggtattcgac cgcttTgttc aactcttcat aggccaaggt 420  
 ctgaatcctc tgatcgaggg aaaggatgat gtctttgccc tttttcgggg ctttaktgcg 480  
 cggggagtc aagctgtcca caatattgcc ctgcgggtcc cgcaaaacga cttccgcgcc 540  
 gtcttcgcca tgcaagctgt cttcaagcga aagttccaaa ccttcctgac ctttgccgTc 600  
 aatatcggt aatccgatga cgtgtgcaaa caggttgccc atcgggtaat ggcgttttaa 660

<210> 906  
 <211> 267  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 906  
 Met Pro Thr Arg Pro Thr Arg Ala Ala Asn Pro Pro Thr Pro Thr Thr  
 1 5 10 15  
 Trp Leu Gln Thr Ala Tyr Cys Pro Arg Pro Pro Tyr Arg Pro Pro Ser  
 20 25 30  
 Val Gln Thr His Thr Pro His Glu Pro Ala Ser Ser Thr Cys Ala Ala  
 35 40 45  
 Lys Ser Ala Asn Arg Arg Glu Asn Ser His Asn Ala Gln Pro Thr Tyr  
 50 55 60  
 Leu Leu His Pro Ser Asn Lys Met Pro Ser Glu Thr Glu Gln Thr Leu

65		70		75		80
Phe Arg Arg His Gln Ile Pro Pro Ser Cys Arg Gln Ser Val Val Val						
	85		90		95	
Met Thr Val Arg Thr Val Asp Met Thr Val Cys Asp Phe Leu Ile Gly						
	100		105		110	
Cys Ile Ala His Ala Phe Asn Arg Ser Phe Lys Ala Asp Phe His Ala						
	115		120		125	
Cys Gln Arg Met Val Ala Val His His Arg Leu Ala Val Gly Asn Ile						
	130		135		140	
Gly Tyr Thr Ile Asp Asp Asn Ile Ala Gly Phe Arg Ile Val Arg Phe						
	145		150		155	160
Lys His His Thr Asp Leu Asp Phe Asn Arg Glu Arg Ala Arg Ile Phe						
	165		170		175	
Asn Thr Asp Gln Leu Arg Ile Met Leu Thr Glu Arg Ile Val Gly Arg						
	180		185		190	
Lys Arg His Phe Asp Arg Ile Ala Gly Ile Leu Thr Val Gln Arg Leu						
	195		200		205	
Phe His Gln Arg Glu Asn Ala Val Val Thr Ala Val Gln Ile Arg Asn						
	210		215		220	
Arg Phe Phe Gly Phe Ile Gln Lys Leu Ile Val Gly Ile Ile His Leu						
	225		230		235	240
Ile Met Gln Arg Asn His Gly Ile Phe Cys Asn Ser His Ile Cys Pro						
	245		250		255	
Phe Arg Asn Ser Arg Leu Ile Thr Gly Ala Phe						
	260		265			

<210> 907  
 <211> 534  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 907  
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 atcggtatgca tcgcgcacgc tttcaactgt agccttaaag cggatttttca tgcctgcca 120  
 aggatggttg ccgtccacca ccgccttgcc gtcggcaaca tcggttacac gatagacgac 180  
 aacatcgccg gtttcaggat cgtcggcttc aaacatcatg ccgacttcga cttcaacagg 240  
 gaacacgccc gcatcttcga tacggacca ctccggatcc tgctcgccga acgcatcgtc 300  
 gggcgacagc gccacatcga ccgtatcgcc ggcataccta ccgtgcaacg cctcttccac 360  
 caaagggaat atgccgtcgt aaccgcccgtg cagatacgca atcggttctt cggttttgtc 420  
 caaaagctga ttgttggcat catacatctc ataatgcagc gaaaccacgg aatttttcac 480  
 gatagccata tttgtccttt caggaacagc agattaatta caggcgcatt ctaa 534

<210> 908

<211> 177  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 908  
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 1 5 10 15  
 Cys Asp Phe Leu Ile Gly Cys Ile Ala His Ala Phe Asn Cys Ser Leu  
 20 25 30  
 Lys Ala Asp Phe His Ala Cys Gln Arg Met Val Ala Val His His Arg  
 35 40 45  
 Leu Ala Val Gly Asn Ile Gly Tyr Thr Ile Asp Asp Asn Ile Ala Gly  
 50 55 60  
 Phe Arg Ile Val Gly Phe Lys His His Ala Asp Phe Asp Phe Asn Arg  
 65 70 75 80  
 Glu His Ala Arg Ile Phe Asp Thr Asp Gln Leu Arg Ile Leu Leu Ala  
 85 90 95  
 Glu Arg Ile Val Gly Arg Gln Arg His Ile Asp Arg Ile Ala Gly Ile  
 100 105 110  
 Leu Thr Val Gln Arg Leu Phe His Gln Arg Glu Asn Ala Val Val Thr  
 115 120 125  
 Ala Val Gln Ile Arg Asn Arg Phe Phe Gly Phe Val Gln Lys Leu Ile  
 130 135 140  
 Val Gly Ile Ile His Leu Ile Met Gln Arg Asn His Gly Ile Phe His  
 145 150 155 160  
 Asp Ser His Ile Cys Pro Phe Arg Asn Ser Arg Leu Ile Thr Gly Ala  
 165 170 175  
 Phe

<210> 909  
 <211> 804  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 909  
 atgccaacac gtccaactcg cgccgcaaag catccaaccc cgccaacctg gcttcagacg 60  
 gcatactgcc ctcggtccgcc atatcggtccg ccgtccgtgc aaacgcatac accgcatgaa 120  
 ccggcttccct caacctgctgc ggcaaaatca gcgaaccgac gggaaaattt tcataatgcc 180  
 caaccgacat accttctcca tccatcaaac aaaatgccgt ctgaaatgga acaaaccctt 240  
 ttcagacggc atcagatacc tccaagctgc cggcaatcag tgggtggtgat gaccgtgctg 300  
 accgtggaca tgaccgtgtg cgatttcttc atcggatgca tcgcgcacac tttcaaccgt 360  
 agccttaaag cggattttca tgctgccaag aggatggttg ccgtccacca ccgccttacc 420  
 gtcggcaaca tcggttacac gatagacgac aacatcgccg gtttcaggat cgtcggcttc 480  
 aaacatcatg ccgacttcga cttcaacagg gaacacgccc gcattctcaa tacggaccaa 540

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ctccggatcc tgctcgccga acgcatcgtc gggcgaaagc gccacatcga ccgtatcgcc 600
ggcatcctta ccgtgcaacg cctcttccac caaagggaag atgccgtcgt aaccgccgtg 660
cagatacgca atcggttctt cggttttgtc caaaagctga ttgttggcat catacatctc 720
ataatgcagc gaaaccacgg aattcttcac gatagccata tttgtccttt caggaacagc 780
agattaatta caggcgcatc ctaa                                     804

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<210> 910
<211> 267
<212> PRT
<213> Neisseria gonorrhoeae

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<400> 910
Met Pro Thr Arg Pro Thr Arg Ala Ala Lys His Pro Thr Pro Pro Thr
 1          5          10          15

Trp Leu Gln Thr Ala Tyr Cys Pro Arg Pro Pro Tyr Arg Pro Pro Ser
          20          25          30

Val Gln Thr His Thr Pro His Glu Pro Ala Ser Ser Thr Cys Ala Ala
          35          40          45

Lys Ser Ala Asn Arg Arg Glu Asn Phe His Asn Ala Gln Pro Thr Tyr
          50          55          60

Leu Leu His Pro Ser Asn Lys Met Pro Ser Glu Met Glu Gln Thr Leu
          65          70          75          80

Phe Arg Arg His Gln Ile Pro Pro Ser Cys Arg Gln Ser Val Val Val
          85          90          95

Met Thr Val Arg Thr Val Asp Met Thr Val Cys Asp Phe Leu Ile Gly
          100          105          110

Cys Ile Ala His Thr Phe Asn Arg Ser Leu Lys Ala Asp Phe His Ala
          115          120          125

Cys Gln Arg Met Val Ala Val His His Arg Leu Thr Val Gly Asn Ile
          130          135          140

Gly Tyr Thr Ile Asp Asp Asn Ile Ala Gly Phe Arg Ile Val Gly Phe
          145          150          155          160

Lys His His Ala Asp Phe Asp Phe Asn Arg Glu His Ala Arg Ile Phe
          165          170          175

Asn Thr Asp Gln Leu Arg Ile Leu Leu Ala Glu Arg Ile Val Gly Arg
          180          185          190

Lys Arg His Ile Asp Arg Ile Ala Gly Ile Leu Thr Val Gln Arg Leu
          195          200          205

Phe His Gln Arg Glu Asn Ala Val Val Thr Ala Val Gln Ile Arg Asn
          210          215          220

Arg Phe Phe Gly Phe Val Gln Lys Leu Ile Val Gly Ile Ile His Leu
          225          230          235          240

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Ile Met Gln Arg Asn His Gly Ile Leu His Asp Ser His Ile Cys Pro  
 245 250 255

Phe Arg Asn Ser Arg Leu Ile Thr Gly Ala Phe  
 260 265

<210> 911  
 <211> 660  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 911  
 atgatagaag tcatacat ttt cttcggcacc gaaacgcgca gacagtttgc ttgtgccgac 60  
 gttggacgat ttctgcatga tgccgcgcac atccaaagag gggtaaacad gggatatcgcg 120  
 cacgggagac ggtccgattt tataaggctg cgtattcagc cgttcgttca aatcggtttt 180  
 gcccgcatcc aatgccttcg caatcacaaa cggtttgatt gccgaaccgg gttcgatcat 240  
 atcggttacg gcacgggtgc gccgctgttc gctgtctgcc cggccggggc tgttgggac 300  
 gtaggcgggc gtattggcca aggcgaggat ttcccccggtg cgggcatcca araccaccac 360  
 cgttccggct tttgctgat ggtattcgac cgcttgttc aactcttcat aggccaaggt 420  
 ctgaatcttc tgatcgaggg aaaggatgat gtctttgccg tttttcgggg ctttactgcg 480  
 cggggagtc aaagctgtcca caatattgcc ctgccggtcc cgcaaaacga cttccgcgcc 540  
 gtcttcgcca tgcaagctgt cttcaagcga aagttccaaa ccttctcgac ctttgccgtc 600  
 aatatcggtg aatccgatga cgtgtgcaaa cagggttggcc atcgggtaat ggcgttttaa 660

<210> 912  
 <211> 267  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 912  
 Met Pro Thr Arg Pro Thr Arg Ala Ala Asn Pro Pro Thr Pro Thr Thr  
 1 5 10 15  
 Trp Leu Gln Thr Ala Tyr Cys Pro Arg Pro Pro Tyr Arg Pro Pro Ser  
 20 25 30  
 Val Gln Thr His Thr Pro His Glu Pro Ala Ser Ser Thr Cys Ala Ala  
 35 40 45  
 Lys Ser Ala Asn Arg Arg Glu Asn Ser His Asn Ala Gln Pro Thr Tyr  
 50 55 60  
 Leu Leu His Pro Ser Asn Lys Met Pro Ser Glu Thr Glu Gln Thr Leu  
 65 70 75 80  
 Phe Arg Arg His Gln Ile Pro Pro Ser Cys Arg Gln Ser Val Val Val  
 85 90 95  
 Met Thr Val Arg Thr Val Asp Met Thr Val Cys Asp Phe Leu Ile Gly  
 100 105 110  
 Cys Ile Ala His Ala Phe Asn Arg Ser Phe Lys Ala Asp Phe His Ala  
 115 120 125

Cys Gln Arg Met Val Ala Val His His Arg Leu Ala Val Gly Asn Ile  
 130 135 140  
 Gly Tyr Thr Ile Asp Asp Asn Ile Ala Gly Phe Arg Ile Val Arg Phe  
 145 150 155 160  
 Lys His His Thr Asp Leu Asp Phe Asn Arg Glu Arg Ala Arg Ile Phe  
 165 170 175  
 Asn Thr Asp Gln Leu Arg Ile Met Leu Thr Glu Arg Ile Val Gly Arg  
 180 185 190  
 Lys Arg His Phe Asp Arg Ile Ala Gly Ile Leu Thr Val Gln Arg Leu  
 195 200 205  
 Phe His Gln Arg Glu Asn Ala Val Val Thr Ala Val Gln Ile Arg Asn  
 210 215 220  
 Arg Phe Phe Gly Phe Ile Gln Lys Leu Ile Val Gly Ile Ile His Leu  
 225 230 235 240  
 Ile Met Gln Arg Asn His Gly Ile Phe Cys Asn Ser His Ile Cys Pro  
 245 250 255  
 Phe Arg Asn Ser Arg Leu Ile Thr Gly Ala Phe  
 260 265

<210> 913  
 <211> 804  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 913  
 atgccaacac gtccaactcg cgtgcaaac cctccaaccc cgccaacctg gcttcagacg 60  
 gcatactgcc ctgctccgcc atatcgctccg ccgtccgtgc aaacgcgtac accgcgtgaa 120  
 ccggcttcct caacctgcgc ggcaaaatca gcgaaccgac gggaaaattc tcataatgcc 180  
 caaccgacat accttctcca tccatcaaac aaaatgccgt ctgaaacgga acaaaccctt 240  
 ttcagacggc atcagatacc tccaagctgc cggcaatcag tgggtggtgat gaccgtgctg 300  
 gccgtggaca tgaccgtgtg cgatttcctc atcggatgca tcgcgcacgc tttcaactgt 360  
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 aaacatcatg ccgacttcga cttcaacagg gaacacgccc gcatcttcga tacggaccaa 540  
 ctccggatcc tgctcgccga acgcatcgtc gggcgacagc gccacatcga ccgtatcgcc 600  
 ggcatcctta ccgtgcaacg cctcttcac caaagggaat atgccgtcgt aaccgccgtg 660  
 cagatacgca atcggttctt cggttttgtc caaaagctga ttgttgcat catacatctc 720  
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 agattaatta caggcgcat ctaa 804

<210> 914  
 <211> 267  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 914  
 Met Pro Thr Arg Pro Thr Arg Ala Ala Asn Pro Pro Thr Pro Pro Thr

1	5	10	15
Trp	Leu	Gln	Thr
20	Ala	Tyr	Cys
	Pro	Arg	Pro
	25	Pro	Tyr
		Arg	Pro
		30	Pro
			Ser
Val	Gln	Thr	Arg
35	Thr	Pro	Arg
	40	Glu	Pro
		Ala	Ser
		Ser	Thr
		45	Cys
			Ala
			Ala
Lys	Ser	Ala	Asn
50	Arg	Arg	Glu
	55	Asn	Ser
		His	Asn
		60	Ala
			Gln
			Pro
			Thr
			Tyr
Leu	Leu	His	Pro
65	Ser	Asn	Lys
	70	Met	Pro
		Ser	Glu
		75	Thr
			Glu
			Gln
			Thr
			Leu
			80
Phe	Arg	Arg	His
	85	Gln	Ile
		Pro	Pro
		Ser	Cys
		90	Arg
			Gln
			Ser
			Val
			Val
			95
Met	Thr	Val	Arg
	100	Ala	Val
		Asp	Met
		105	Thr
			Val
			Cys
			Asp
			Phe
			Leu
			Ile
			Gly
			110
Cys	Ile	Ala	His
115	Ala	Phe	Asn
	120	Cys	Ser
		Leu	Lys
		Ala	Asp
		125	Phe
			His
			Ala
Cys	Gln	Arg	Met
130	Val	Ala	Val
	135	His	His
		Arg	Leu
		140	Ala
			Val
			Gly
			Asn
			Ile
Gly	Tyr	Thr	Ile
145	Asp	Asp	Asn
	150	Ile	Ala
		Gly	Phe
		155	Arg
			Ile
			Val
			Gly
			Phe
			160
Lys	His	His	Ala
	165	Asp	Phe
		Asp	Phe
		170	Asn
			Arg
			Glu
			His
			Ala
			Arg
			Ile
			Phe
			175
Asp	Thr	Asp	Gln
	180	Leu	Arg
		Ile	Leu
		185	Leu
			Ala
			Glu
			Arg
			Ile
			Val
			Gly
			Arg
			190
Gln	Arg	His	Ile
195	Asp	Arg	Ile
	200	Ala	Gly
		Ile	Leu
		Thr	Val
		205	Gln
			Arg
			Leu
Phe	His	Gln	Arg
210	Glu	Asn	Ala
	215	Val	Val
		Thr	Ala
		220	Val
			Gln
			Ile
			Arg
			Asn
Arg	Phe	Phe	Gly
225	Phe	Val	Gln
	230	Lys	Leu
		Ile	Val
		235	Gly
			Ile
			Ile
			His
			Leu
			240
Ile	Met	Gln	Arg
	245	His	Gly
		Ile	Phe
		250	His
			Asp
			Ser
			His
			Ile
			Cys
			Pro
			255
Phe	Arg	Asn	Ser
	260	Arg	Leu
		Ile	Thr
		Gly	Ala
		265	Phe

<210> 915

<211> 804

<212> DNA

<213> Neisseria meningitidis

<400> 915

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ccggcttcct caacctgcgc ggcaaaatca gcgaaccgac gggaaaattt tcataatgcc 180
caaccgacat accttctcca tccatcaaac aaaatgccgt ctgaaatgga acaaaccctt 240
ttcagacggc atcagatacc tccaagctgc cggcaatcag tgggtggtgat gaccgtgcgg 300
accgtggaca tgaccgtgtg cgatttcctc atcggatgca tcgcgcacac tttcaaccgt 360
agccttaaag cggattttca tgcttgccaa aggatggttg ccgtccacca ccgccttacc 420
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aaacatcatg ccgacttcga cttcaacagg gaacacgccc gcatcttcaa tacggaccaa 540
ctccggatcc tgctcgccga acgcatcgtc gggcgaaagc gccacatcga ccgtatcgcc 600
ggcatcctta ccgtgcaacg cctcttccac caaagggaaa atgccgtcgt aaccgccgtg 660
cagatacgca atcggttctt cggttttgtc caaaagctga ttgttggcat catacatctc 720
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<210> 916

<211> 267

<212> PRT

<213> Neisseria meningitidis

<400> 916

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Met Pro Thr Arg Pro Thr Arg Ala Ala Lys His Pro Thr Pro Pro Thr
 1                      5                      10                      15

Trp Leu Gln Thr Ala Tyr Cys Pro Arg Pro Pro Tyr Arg Pro Pro Ser
                20                      25                      30

Val Gln Thr His Thr Pro His Glu Pro Ala Ser Ser Thr Cys Ala Ala
    35                      40                      45

Lys Ser Ala Asn Arg Arg Glu Asn Phe His Asn Ala Gln Pro Thr Tyr
    50                      55                      60

Leu Leu His Pro Ser Asn Lys Met Pro Ser Glu Met Glu Gln Thr Leu
    65                      70                      75                      80

Phe Arg Arg His Gln Ile Pro Pro Ser Cys Arg Gln Ser Val Val Val
                85                      90                      95

Met Thr Val Arg Thr Val Asp Met Thr Val Cys Asp Phe Leu Ile Gly
    100                      105                      110

Cys Ile Ala His Thr Phe Asn Arg Ser Leu Lys Ala Asp Phe His Ala
    115                      120                      125

Cys Gln Arg Met Val Ala Val His His Arg Leu Thr Val Gly Asn Ile
    130                      135                      140

Gly Tyr Thr Ile Asp Asp Asn Ile Ala Gly Phe Arg Ile Val Gly Phe
    145                      150                      155                      160

Lys His His Ala Asp Phe Asp Phe Asn Arg Glu His Ala Arg Ile Phe
                165                      170                      175

Asn Thr Asp Gln Leu Arg Ile Leu Leu Ala Glu Arg Ile Val Gly Arg

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180	185	190
Lys Arg His Ile Asp Arg Ile Ala Gly Ile Leu Thr Val Gln Arg Leu		
195	200	205
Phe His Gln Arg Glu Asn Ala Val Val Thr Ala Val Gln Ile Arg Asn		
210	215	220
Arg Phe Phe Gly Phe Val Gln Lys Leu Ile Val Gly Ile Ile His Leu		
225	230	235
Ile Met Gln Arg Asn His Gly Ile Leu His Asp Ser His Ile Cys Pro		
	245	250
		255
Phe Arg Asn Ser Arg Leu Ile Thr Gly Ala Phe		
260	265	

<210> 917  
 <211> 870  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 917

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tacgcctgct	tttgccatat	tctgcaaaat	cttgccgggc	atagagccga	tataggtacg	180
gcggtgcccc	cggatttcgc	tttcgtcgcg	cacgcgcgcc	aaggccatac	ggacatatatt	240
ccgccccgtt	gctttggcga	tggattcgcc	caaagaggtt	ttgcccacgc	ccggagggcc	300
gaccaaacac	agaatcggac	ctttgagctt	gtccatacgt	ttttggacgg	cgaggtattc	360
caaaatccgt	tctttgactt	tttcagggcc	gtagtggctg	gcatccagca	ccagtccggc	420
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gatgtagtgt	cgtagcagcg	tggattcggc	agacatcggc	ggcatcattt	tgagtttttt	540
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ctccaaggca	tccagttcgc	cgttttcgtc	ttcttcgcc	aattctttgt	gtatcgcttt	660
aatctgttcg	ttcagataat	attcgcgttg	ggatttttcc	atttggcggt	tgacgcgtcc	720
gcgtatgcgt	ttttcggcct	gcataatgtc	gagttcggat	tccagctttg	ccagcaggaa	780
ttccatccgt	ttgccgattt	cggaatctc	caaaatctgt	tggcgttgcg	ccagtttcaa	840
ctgcaaatgc	gctgcgaccg	tatcggttag				870

<210> 918  
 <211> 289  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 918

Met	Ile	Gly	Glu	Leu	Val	Val	Leu	Phe	Val	Ile	Glu	His	Phe	Lys	Gln
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Arg	Ala	Gly	Gly	Ile	Ala	Pro	Lys	Val	Ala	Ala	Gln	Phe	Val	Asp	Phe
	20						25						30		
Val	Glu	Gln	Glu	Gln	Arg	Val	Ser	Tyr	Ala	Cys	Phe	Cys	His	Ile	Leu
	35						40					45			
Gln	Asn	Leu	Ala	Gly	His	Arg	Ala	Asp	Ile	Gly	Thr	Ala	Val	Pro	Ala

50	55	60
Asp Phe Ala Phe Val Ala His Ala Ala Gln Gly His Thr Asp Ile Phe 65 70 75 80		
Pro Pro Arg Cys Phe Gly Asp Gly Phe Ala Gln Arg Gly Phe Ala His 85 90 95		
Ala Arg Arg Ala Asp Gln Thr Gln Asn Arg Thr Phe Glu Leu Val His 100 105 110		
Thr Phe Leu Asp Gly Glu Val Phe Gln Asn Pro Phe Phe Asp Phe Phe 115 120 125		
Gln Ala Val Val Val Gly Ile Gln His Gln Ser Gly Phe Gly Asp Val 130 135 140		
Phe Ala Asp Ala Gly Phe Phe Leu Pro Arg Gln Ser Glu Gln Gly Val 145 150 155 160		
Asp Val Val Ala Tyr Asp Gly Gly Phe Gly Arg His Arg Arg His His 165 170 175		
Phe Glu Phe Phe Gln Phe Gly Gln Ala Phe Phe Phe Arg Phe Phe Gly 180 185 190		
His Thr Arg Leu Phe Asp Ala Cys Leu Gln Gly Ile Gln Phe Ala Val 195 200 205		
Phe Val Phe Phe Ala Gln Phe Phe Val Tyr Arg Phe Asn Leu Phe Val 210 215 220		
Gln Ile Ile Phe Ala Leu Gly Phe Phe His Leu Ala Phe Asp Ala Ser 225 230 235 240		
Ala Tyr Ala Phe Phe Gly Leu His Asn Val Glu Phe Gly Phe Gln Leu 245 250 255		
Cys Gln Gln Glu Phe His Pro Phe Ala Asp Phe Gly Asn Leu Gln Asn 260 265 270		
Leu Leu Ala Leu Arg Gln Phe Gln Leu Gln Met Arg Cys Asp Arg Ile 275 280 285		

Gly

<210> 919  
 <211> 870  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 919  
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 atgcctcgg aagtcgttac ccaattgtc gatttcgtcg agcaggaaca aggggtttt 120  
 cacgccggct ttgccatat tctgcaaat cttaccgggc atagagccga tataggtgcg 180

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gcggtgtccc ctgatttcgc tttcgtcgcg cacgccgccc aaagccatgc ggacatattt 240
ccgccccgtt gctttggcga tggattcgcc caaagagggt ttgccacgc ccggagggcc 300
gaccaggcac agaatcgggc ctttgagttt gtccatacgt ttttggacgg cgaggtattc 360
caaaatccgt tctttgactt tttccaggcc gtagtggtcg gcatccagca ccagtccggc 420
tttggcgatg tctttgctga cgcgggattt tttcttccac ggcagctcga gcaaagtgtc 480
gatgtagttg cgtacgacgg tggattccgc agacatcggg ggcattcatt tgagcttttt 540
cagttcggac aggcattttt ctcccgcttc tttggtcata cccgcctttt tgatatctgc 600
ttccaaggca tccagttcgc cgttttcgtc ttcttcgccc agttctttgt gtatcgcttt 660
aatctgttcg ttcagataat attcgcgctg ggatttttcc atttggcgtt tgacgcgtcc 720
gcgtatgcgt ttttcggcct gcataatgtc gagttcggat tccagctgtg ccagcaggaa 780
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ctgcaaatgc gctgcgaccg tatcggttag 870

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<210> 920  
 <211> 289  
 <212> PRT  
 <213> Neisseria meningitidis

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<400> 920
Met Ile Gly Lys Leu Val Val Leu Phe Gly Ile Glu His Phe Glu Gln
  1             5             10             15

Arg Ala Gly Gly Ile Ala Ser Glu Val Val Thr Gln Phe Val Asp Phe
          20             25             30

Val Glu Gln Glu Gln Gly Val Phe His Ala Gly Phe Cys His Ile Leu
      35             40             45

Gln Asn Leu Thr Gly His Arg Ala Asp Ile Gly Ala Ala Val Ser Pro
  50             55             60

Asp Phe Ala Phe Val Ala His Ala Ala Gln Ser His Ala Asp Ile Phe
  65             70             75             80

Pro Pro Arg Cys Phe Gly Asp Gly Phe Ala Gln Arg Gly Phe Ala His
          85             90             95

Ala Arg Arg Ala Asp Gln Ala Gln Asn Arg Ala Phe Glu Phe Val His
      100             105             110

Thr Phe Leu Asp Gly Glu Val Phe Gln Asn Pro Phe Phe Asp Phe Phe
      115             120             125

Gln Ala Val Val Val Gly Ile Gln His Gln Ser Gly Phe Gly Asp Val
      130             135             140

Phe Ala Asp Ala Gly Phe Phe Leu Pro Arg Gln Leu Glu Gln Ser Val
      145             150             155             160

Asp Val Val Ala Tyr Asp Gly Gly Phe Arg Arg His Arg Trp His His
      165             170             175

Phe Glu Leu Phe Gln Phe Gly Gln Ala Phe Phe Phe Arg Phe Phe Gly
      180             185             190

His Thr Arg Leu Phe Asp Ile Cys Phe Gln Gly Ile Gln Phe Ala Val

```

195

200

205

Phe Val Phe Phe Ala Gln Phe Phe Val Tyr Arg Phe Asn Leu Phe Val  
 210 215 220

Gln Ile Ile Phe Ala Leu Gly Phe Phe His Leu Ala Phe Asp Ala Ser  
 225 230 235 240

Ala Tyr Ala Phe Phe Gly Leu His Asn Val Glu Phe Gly Phe Gln Leu  
 245 250 255

Cys Gln Gln Glu Phe His Pro Phe Ala Asp Phe Gly Asn Phe Gln Asn  
 260 265 270

Leu Leu Ala Leu Arg Gln Phe Gln Leu Gln Met Arg Cys Asp Arg Ile  
 275 280 285

Gly

&lt;210&gt; 921

&lt;211&gt; 870

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 921

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 atcgccccgg aagtcgctan ccaatttgtc gatttcgctc agcaggaaca atgggttttt 120  
 tacgccggct ttgccatat tctgcaaaat cttaccgggc atggagccga tatagggtgcg 180  
 gcggtgtccc cggatttcgc ttctcgtcgc cacgccgccc aaagccatgc ggacatatat 240  
 ccgccccgtt gctttggcga tggattcgc caaagagggt ttgcccacgc ctggaggggcc 300  
 gaccaggcac agaatcgggc ctttgagttt gtccatacgt ttttggacgg cgagggtattc 360  
 caaaatccgt tctttgactt tttccaggcc gtagtggtcg gtatccagca ccaatccggc 420  
 tttggcgatg tctttgctga cgcgggattt tttcttccac ggcagttcga gcagggtgtc 480  
 gatgtagttg cgtacgacgg tggattcggc agacatcggc ggcacatatt tgagcttttt 540  
 cagttcggac aggcattttt cttccgcttc tttggtcata cccgcctttt tgatatctgc 600  
 ttccaaggca tccagttcgc cgttttcgtc ttcttcgccc agttctttgt gtatcgcttt 660  
 aatctgttcg ttcagataat attcgcgctg ggatttttcc atttggcggt tgacgcgctc 720  
 gcgtatgcgt ttttcggcct gcataatgtc gagttcggat tccagctgtg ccagcaggaa 780  
 ttccatccgt ttgccgattt cgggaatttc caaaatctgt tggcgttgcg ccagtttcaa 840  
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&lt;210&gt; 922

&lt;211&gt; 289

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 922

Met Ile Gly Glu Leu Val Val Leu Leu Gly Ile Lys His Phe Glu Gln  
 1 5 10 15

Arg Ala Gly Gly Ile Ala Pro Glu Val Ala Xaa Gln Phe Val Asp Phe  
 20 25 30

Val Glu Gln Glu Gln Trp Val Phe Tyr Ala Gly Phe Cys His Ile Leu

35					40					45					
Gln	Asn	Leu	Thr	Gly	His	Gly	Ala	Asp	Ile	Gly	Ala	Ala	Val	Ser	Pro
50						55					60				
Asp	Phe	Ala	Phe	Val	Ala	His	Ala	Ala	Gln	Ser	His	Ala	Asp	Ile	Phe
65						70					75				80
Pro	Pro	Arg	Cys	Phe	Gly	Asp	Gly	Phe	Ala	Gln	Arg	Gly	Phe	Ala	His
				85					90					95	
Ala	Trp	Arg	Ala	Asp	Gln	Ala	Gln	Asn	Arg	Ala	Phe	Glu	Phe	Val	His
			100					105					110		
Thr	Phe	Leu	Asp	Gly	Glu	Val	Phe	Gln	Asn	Pro	Phe	Phe	Asp	Phe	Phe
		115					120					125			
Gln	Ala	Val	Val	Val	Gly	Ile	Gln	His	Gln	Ser	Gly	Phe	Gly	Asp	Val
	130					135					140				
Phe	Ala	Asp	Ala	Gly	Phe	Phe	Leu	Pro	Arg	Gln	Phe	Glu	Gln	Gly	Val
145						150					155				160
Asp	Val	Val	Ala	Tyr	Asp	Gly	Gly	Phe	Gly	Arg	His	Arg	Arg	His	His
				165					170					175	
• Phe	Glu	Leu	Phe	Gln	Phe	Gly	Gln	Ala	Phe	Phe	Phe	Arg	Phe	Phe	Gly
			180					185					190		
His	Thr	Arg	Leu	Phe	Asp	Ile	Cys	Phe	Gln	Gly	Ile	Gln	Phe	Ala	Val
		195					200					205			
Phe	Val	Phe	Phe	Ala	Gln	Phe	Phe	Val	Tyr	Arg	Phe	Asn	Leu	Phe	Val
	210					215					220				
Gln	Ile	Ile	Phe	Ala	Leu	Gly	Phe	Phe	His	Leu	Ala	Phe	Asp	Ala	Ser
225						230					235				240
Ala	Tyr	Ala	Phe	Phe	Gly	Leu	His	Asn	Val	Glu	Phe	Gly	Phe	Gln	Leu
				245					250					255	
Cys	Gln	Gln	Glu	Phe	His	Pro	Phe	Ala	Asp	Phe	Gly	Asn	Phe	Gln	Asn
			260					265					270		
Leu	Leu	Ala	Leu	Arg	Gln	Phe	Gln	Leu	Gln	Met	Arg	Cys	Asp	Arg	Ile
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Gly

<210> 923  
 <211> 333  
 <212> DNA  
 <213> Neisseria gonorrhoeae  
 <400> 923

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aaggcggtgc agaggttgac ggcgagccac atccagcggg ttttgacgga atccaagacg 180
ggggcgaaca ggtcttcctc ttctgcaaa cctgccatgt tcaacatatc cgcttcggat 240
tcttcgcgga tcacgtccac catctcgtcg atggtaatcc tgccgatgag ctttttggtt 300
tcacaaacga cgggcgcggg aaccaagtcg tag 333

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<210> 924  
 <211> 110  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

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<400> 924
Met Val Ile Val Trp Leu Pro Glu Leu Pro Pro Met Pro Ala Thr Met
  1             5             10             15

Gly Ile Ser Ala Ala Ser Ala Thr Ile Phe Ser Ile Leu Pro Ser Asn
      20             25             30

Ala Pro Met Thr Arg Leu Ala Arg Lys Ala Val Gln Arg Leu Thr Ala
      35             40             45

Ser His Ile Gln Arg Phe Leu Thr Glu Ser Lys Thr Gly Ala Asn Arg
      50             55             60

Ser Ser Ser Ser Cys Lys Pro Ala Met Phe Asn Ile Ser Ala Ser Asp
      65             70             75             80

Ser Ser Arg Ile Thr Ser Thr Ile Ser Ser Met Val Ile Leu Pro Met
      85             90             95

Ser Phe Leu Phe Ser Ser Thr Thr Gly Ala Val Thr Lys Ser
      100            105            110

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<210> 925  
 <211> 333  
 <212> DNA  
 <213> *Neisseria meningitidis*

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<400> 925
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aaggcggtgc agaggttgac ggcgagccac atccagyggg ttttcaccga atcccacacg 180
ggggcgaaya ggtcttcctc ttctgcaaa cccgccatat tcagcatatc cgcttcggat 240
tcttcgcgga tcacgtccac catctcgtcg atggtaatcc tgccgatgag ctttttggtt 300
tcacgacga cgggcgcggg aaccaagtcg tag 333

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<210> 926  
 <211> 110  
 <212> PRT  
 <213> *Neisseria meningitidis*

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<400> 926
Met Val Ile Val Trp Leu Pro Glu Leu Pro Pro Met Pro Ala Thr Met

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1	5	10	15
Gly Ile Ser Ala Xaa Ser Ala Thr Ile Phe Ser Met Leu Pro Ser Asn			
20	25	30	
Ala Pro Ile Thr Arg Leu Ala Arg Lys Ala Val Gln Arg Leu Thr Ala			
35	40	45	
Ser His Ile Gln Xaa Phe Phe Thr Glu Ser His Thr Gly Ala Asn Arg			
50	55	60	
Ser Ser Ser Ser Cys Lys Pro Ala Ile Phe Ser Ile Ser Ala Ser Asp			
65	70	75	80
Ser Ser Arg Ile Thr Ser Thr Ile Ser Ser Met Val Ile Leu Pro Met			
85	90	95	
Ser Phe Leu Phe Ser Ser Thr Thr Gly Ala Val Thr Lys Ser			
100	105	110	

<210> 927  
 <211> 333  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 927  
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 aaggcgggtgc agaggttgac ggcgagccac atccagcggt ttttgacgga atccaagacg 180  
 ggggcgaata agtcttctc ttcttgcaaa cccgccatat tcaacatata cgcttcggat 240  
 tcttcgcgga tcacgtccac catttcgtca acggtcaccc tgccgatgag ctttttgttt 300  
 tcacgcacga cgggcgcggt aaccaagtca tag 333

<210> 928  
 <211> 110  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 928
Met Val Ile Val Trp Leu Pro Glu Leu Pro Pro Met Pro Ala Thr Met
1 5 10 15
Gly Ile Ser Ala Ala Ser Ala Thr Ile Phe Ser Met Leu Pro Ser Asn
20 25 30
Ala Pro Ile Thr Arg Leu Ala Arg Lys Ala Val Gln Arg Leu Thr Ala
35 40 45
Ser His Ile Gln Arg Phe Leu Thr Glu Ser Lys Thr Gly Ala Asn Lys
50 55 60
Ser Ser Ser Ser Cys Lys Pro Ala Ile Phe Asn Ile Ser Ala Ser Asp
65 70 75 80
Ser Ser Arg Ile Thr Ser Thr Ile Ser Ser Thr Val Thr Leu Pro Met

85

90

95

Ser Phe Leu Phe Ser Ser Thr Thr Gly Ala Val Thr Lys Ser  
 100 105 110

&lt;210&gt; 929

&lt;211&gt; 834

&lt;212&gt; DNA

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 929

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 cttccgtgcc accgtaacca tagccgggcg caacacacgg tcggacaggg tataaccctt 180  
 cttcatcaca ccaaccacgg tattgggttc ctgctcactg gccaccgcct gcacgcctg 240  
 atggatattc ggatcgagct tatcgccgcg tttaggattg atttccttga tttgcgtggc 300  
 atcaaacgcc ttctgcaact cattcaaagt catctgcaca cccattttca gcgcacgaa 360  
 attaccgctc tgatccaaaa gcgccatttc cagataatcc ttgaccggca acatttccac 420  
 ggcaaacctt tgtccggcga acttgtgcgt atcggaatt tctgtctggt ggccggcgcg 480  
 caggttttgc tcgtttgcc aagcgcgcag ttgttcgtct ttcaactgog cttccagctc 540  
 ggcaatccgc gcctgcaaat cctcataagc cggctcggcg gcagcctggt cctgtacacc 600  
 gtccgcattt cctactgtct cgacgggttc caccgcctcc acattttcaa ccgctttctt 660  
 actgttttgc tgcgtgtgtct gttcgtcat atcgatatcc tcaaaacaaa ttggaaatca 720  
 aaatccggtt attacccgag caagataagg acattttcaa gaaacttcaa gcaaaggcag 780  
 gaaatttcac atccgcgcgc gaatacccta ccgcaaaaac catataaacg gtaa 834

&lt;210&gt; 930

&lt;211&gt; 277

&lt;212&gt; PRT

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 930

Met Pro Pro Glu Ala Arg Pro Ala Gly Ser Asp Gly Ile Ala Ala Leu  
 1 5 10 15  
 Leu Arg Ser Val Tyr Thr Gln Asn Ala Leu Gln Glu Ile Asn Gln Ile  
 20 25 30  
 Ile Pro Gln Thr Pro Ser Gly Phe Leu Pro Cys His Arg Asn His Ser  
 35 40 45  
 Arg Ala Gln His Thr Val Gly Gln Gly Ile Thr Leu Leu His His Thr  
 50 55 60  
 Asn His Gly Ile Gly Phe Leu Leu Thr Gly His Arg Leu His Arg Leu  
 65 70 75 80  
 Met Asp Ile Arg Ile Glu Leu Ile Ala Arg Phe Arg Ile Asp Phe Leu  
 85 90 95  
 Asp Leu Arg Gly Ile Lys Arg Leu Leu Gln Leu Ile Gln Ser His Leu  
 100 105 110  
 His Thr His Phe Gln Arg Ile Glu Ile Thr Ala Leu Ile Gln Lys Arg  
 115 120 125



His Phe Gln Ile Ile Leu Asp Arg Gln His Phe His Gly Lys Leu Leu  
 130 135 140

Ser Gly Glu Leu Val Arg Ile Gly Asn Phe Leu Leu Val Ala Ala Ala  
 145 150 155 160

Gln Val Leu Leu Val Cys Gln Ser Ala Gln Leu Phe Val Phe Gln Leu  
 165 170 175

Arg Phe Gln Leu Gly Asn Pro Arg Leu Gln Ile Leu Ile Ser Arg Leu  
 180 185 190

Gly Gly Ser Leu Phe Leu Tyr Thr Val Arg Ile Ser Tyr Cys Leu Asp  
 195 200 205

Gly Phe His Arg Leu His Ile Phe Asn Arg Phe Phe Thr Val Leu Leu  
 210 215 220

Leu Cys Leu Phe Ala His Ile Val Ser Leu Lys Thr Asn Trp Lys Ser  
 225 230 235 240

Lys Ser Gly Tyr Tyr Pro Ser Lys Ile Arg Thr Phe Ser Arg Asn Phe  
 245 250 255

Lys Gln Arg Gln Glu Ile Ser His Pro Pro Pro Asn Thr Leu Pro Gln  
 260 265 270

Lys Pro Tyr Lys Arg  
 275

<210> 931  
 <211> 831  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 931  
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 cttctgcgcc accgtaacca tagccgggcg caacacgcgg tcggacagcg tataaccctt 180  
 cttcatcaca cccaccacgg tattcggtc ctgttcgctt gccaccgcct gcatcgctg 240  
 atggatattc ggatcgagct tatcgccgc tttagggttg atttccttga tttgcgtagc 300  
 atcaaattgct ttctgcaact cgttcaaagt catctgcacg cccattttca gcgcatcgaa 360  
 attgccgctc tgatccaaaa gcgccatttc cagataatcc ttgaccggca gcatttccac 420  
 ggcaaaacttc tgtccggcga acttggtcgt atccgcaatt tyctgctggt ggcggcggcg 480  
 caggttttgc tcgttttgcca aagcgcgctg ctcgctcttc aactgcgtt ccagctcggc 540  
 aatccgcgcc tgcaaatcct cataagccgg ctctgcggca gcctgttct gcacaccgtc 600  
 cgcatttctt actgtttcga cggtttccac cgctccaca ttttcaaccg cttcttctact 660  
 gttttgctgc tgtgtctggt cgctcatatc gtatccctta aaacaaattg gaaatcaaaa 720  
 tccagttatt acccgcgcaa gataaggaca ttttcaagaa acttcaakca aaakcagaga 780  
 atttcaaatt cattttcaaa tcccctaccg aaaaaataat atagacggt a 831

<210> 932  
 <211> 276  
 <212> PRT

<213> Neisseria meningitidis

<400> 932

Met Pro Ser Glu Ala Arg Gln Ala Gly Ser Asp Gly Ile Ala Ala Leu  
1 5 10 15

Leu Arg Ser Val Tyr Thr Gln Asn Ala Leu Gln Glu Ile Asn Gln Ile  
20 25 30

Ile Pro Gln Thr Pro Ser Gly Phe Leu Leu Arg His Arg Asn His Ser  
35 40 45

Arg Ala Gln His Ala Val Gly Gln Arg Ile Thr Leu Leu His His Thr  
50 55 60

His His Gly Ile Arg Leu Leu Phe Ala Cys His Arg Leu His Arg Leu  
65 70 75 80

Met Asp Ile Arg Ile Glu Leu Ile Ala Arg Phe Arg Val Asp Phe Leu  
85 90 95

Asp Leu Arg Ser Ile Lys Cys Phe Leu Gln Leu Val Gln Ser His Leu  
100 105 110

His Ala His Phe Gln Arg Ile Glu Ile Ala Ala Leu Ile Gln Lys Arg  
115 120 125

His Phe Gln Ile Ile Leu Asp Arg Gln His Phe His Gly Lys Leu Leu  
130 135 140

Ser Gly Glu Leu Val Arg Ile Arg Asn Phe Leu Leu Val Ala Ala Ala  
145 150 155 160

Gln Val Leu Leu Val Cys Gln Ser Ala Leu Leu Val Phe Gln Leu Arg  
165 170 175

Phe Gln Leu Gly Asn Pro Arg Leu Gln Ile Leu Ile Ser Arg Leu Cys  
180 185 190

Gly Ser Leu Phe Leu His Thr Val Arg Ile Ser Tyr Cys Phe Asp Gly  
195 200 205

Phe His Arg Leu His Ile Phe Asn Arg Phe Phe Thr Val Leu Leu Leu  
210 215 220

Cys Leu Phe Ala His Ile Val Ser Leu Lys Thr Asn Trp Lys Ser Lys  
225 230 235 240

Ser Ser Tyr Tyr Pro Arg Lys Ile Arg Thr Phe Ser Arg Asn Phe Xaa  
245 250 255

Gln Xaa Gln Arg Ile Ser Asn Ser Phe Ser Asn Pro Leu Pro Lys Lys  
260 265 270

Xaa Tyr Arg Arg  
275

<210> 933  
 <211> 834  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 933  
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 cttctgtgcc accgtaacca tagccgggcg caacacgcgg tcggacagcg tataaccctt 180  
 cttcatcacg cccaccacgg tattgggttc ctgttcgctt gccaccgcct gcacgcgctg 240  
 atggatattc ggatcgagct tatcgcccg ctttaggattg atttccttga tttgcgtagc 300  
 atcaaagtct ttctgcaact cgttcaaagt catctgcacg cccattttca gcgcacgaa 360  
 attgccgctc tgatccaaaa gcgccatttc cagataatcc ttgaccggca gcatttccac 420  
 ggcaaatctc tgtccggcga acttgtgcgt atccgcaatt tcctgctggt ggccggcgcg 480  
 caggttttgc tcgtttgcc aagcgcgcag ctgctcgtct ttcaactgcg cttccagctc 540  
 ggcaatccgc gcctgcaaat cctcataagc cggctctgcg gcagcctggt cctgcacacc 600  
 gtcgcgattt cctactgtct cgacgggttc caccgcctcc acattttcaa ccgcttcttc 660  
 actgttttgc tgctgtgtct gttcgctcat atcgatatcc ttaaaacaaa ttggaaatca 720  
 aaatccagtt attaccgcg caagataagg acattttcaa gaaacttcaa gcaaaggcag 780  
 agaatttcaa attcattttc aaatccccta ccgaaaaaat aatatagacg gtaa 834

<210> 934  
 <211> 276  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 934  
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 Leu Arg Ser Val Tyr Thr Gln Asn Ala Leu Gln Glu Ile Asn Gln Ile  
 20 25 30  
 Ile Pro Gln Thr Pro Ser Gly Phe Leu Leu Cys His Arg Asn His Ser  
 35 40 45  
 Arg Ala Gln His Ala Val Gly Gln Arg Ile Thr Leu Leu His His Ala  
 50 55 60  
 His His Gly Ile Gly Phe Leu Phe Ala Cys His Arg Leu His Arg Leu  
 65 70 75 80  
 Met Asp Ile Arg Ile Glu Leu Ile Ala Arg Phe Arg Ile Asp Phe Leu  
 85 90 95  
 Asp Leu Arg Ser Ile Lys Cys Phe Leu Gln Leu Val Gln Ser His Leu  
 100 105 110  
 His Ala His Phe Gln Arg Ile Glu Ile Ala Ala Leu Ile Gln Lys Arg  
 115 120 125  
 His Phe Gln Ile Ile Leu Asp Arg Gln His Phe His Gly Lys Leu Leu  
 130 135 140  
 Ser Gly Glu Leu Val Arg Ile Arg Asn Phe Leu Leu Val Ala Ala Ala

145                      150                      155                      160  
 Gln Val Leu Leu Val Cys Gln Ser Ala Gln Leu Leu Val Phe Gln Leu  
                                  165                      170                      175  
 Arg Phe Gln Leu Gly Asn Pro Arg Leu Gln Ile Leu Ile Ser Arg Leu  
                                  180                      185                      190  
 Cys Gly Ser Leu Phe Leu His Thr Val Arg Ile Ser Tyr Cys Leu Asp  
                                  195                      200                      205  
 Gly Phe His Arg Leu His Ile Phe Asn Arg Phe Phe Thr Val Leu Leu  
                                  210                      215                      220  
 Leu Cys Leu Phe Ala His Ile Val Ser Leu Lys Thr Asn Trp Lys Ser  
 225                      230                      235                      240  
 Lys Ser Ser Tyr Tyr Pro Arg Lys Ile Arg Thr Phe Ser Arg Asn Phe  
                                  245                      250                      255  
 Lys Gln Arg Gln Arg Ile Ser Asn Ser Phe Ser Asn Pro Leu Pro Lys  
                                  260                      265                      270  
 Lys Tyr Arg Arg  
                                  275

<210> 935  
 <211> 834  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 935  
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 cttccgtgcc accgtaacca tagccgggcg caacacacgg tcggacaggg tataaccctt 180  
 cttcatcaca ccaaccacgg tattgggttc ctgctcactg gccaccgcct gcacgcctg 240  
 atggatattc ggatcgagct tatcgccgcg tttaggattg atttccttga tttgcgtggc 300  
 atcaaacgcc ttctgcaact cattcaaagt catctgcaca cccattttca gcgcatcgaa 360  
 attaccgctc tgatccaaaa gcgccatttc cagataatcc ttgaccggca acattttccac 420  
 ggcaaaacttc tgtccggcga acttgtgcgt atcggcaatt tcctgctggt ggccggcgcg 480  
 caggttttgc tcgtttgcc aagcgcgcag ttgttcgtct ttcaactgcg cttccagctc 540  
 ggcaatccgc gcctgcaaat cctcataagc cggctcggcg gcagcctgtt cctgtacacc 600  
 gtccgcattt cctactgtct cgacggtttc caccgcctcc acattttcaa ccgcttcttc 660  
 actgttttgc tgctgtgtct gttcgctcat atcgtatccc tcaaaacaaa ttggaaatca 720  
 aaatccggtt attacccgag caagataagg acattttcaa gaaacttcaa gcaaaggcag 780  
 gaaatttcac atccgcgcgc gaatacccta ccgcaaaaac catataaacg gtaa 834

<210> 936  
 <211> 277  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 936  
 Met Pro Pro Glu Ala Arg Pro Ala Gly Ser Asp Gly Ile Ala Ala Leu

1	5	10	15
Leu Arg Ser Val Tyr Thr Gln Asn Ala Leu Gln Glu Ile Asn Gln Ile	20	25	30
Ile Pro Gln Thr Pro Ser Gly Phe Leu Pro Cys His Arg Asn His Ser	35	40	45
Arg Ala Gln His Thr Val Gly Gln Gly Ile Thr Leu Leu His His Thr	50	55	60
Asn His Gly Ile Gly Phe Leu Leu Thr Gly His Arg Leu His Arg Leu	65	70	75
Met Asp Ile Arg Ile Glu Leu Ile Ala Arg Phe Arg Ile Asp Phe Leu	85	90	95
Asp Leu Arg Gly Ile Lys Arg Leu Leu Gln Leu Ile Gln Ser His Leu	100	105	110
His Thr His Phe Gln Arg Ile Glu Ile Thr Ala Leu Ile Gln Lys Arg	115	120	125
His Phe Gln Ile Ile Leu Asp Arg Gln His Phe His Gly Lys Leu Leu	130	135	140
Ser Gly Glu Leu Val Arg Ile Gly Asn Phe Leu Leu Val Ala Ala Ala	145	150	155
Gln Val Leu Leu Val Cys Gln Ser Ala Gln Leu Phe Val Phe Gln Leu	165	170	175
Arg Phe Gln Leu Gly Asn Pro Arg Leu Gln Ile Leu Ile Ser Arg Leu	180	185	190
Gly Gly Ser Leu Phe Leu Tyr Thr Val Arg Ile Ser Tyr Cys Leu Asp	195	200	205
Gly Phe His Arg Leu His Ile Phe Asn Arg Phe Phe Thr Val Leu Leu	210	215	220
Leu Cys Leu Phe Ala His Ile Val Ser Leu Lys Thr Asn Trp Lys Ser	225	230	235
Lys Ser Gly Tyr Tyr Pro Ser Lys Ile Arg Thr Phe Ser Arg Asn Phe	245	250	255
Lys Gln Arg Gln Glu Ile Ser His Pro Pro Pro Asn Thr Leu Pro Gln	260	265	270
Lys Pro Tyr Lys Arg	275		

<210> 937  
 <211> 819  
 <212> DNA

<213> Neisseria meningitidis

<400> 937

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cttctgcgcc accgtaacca tagccgggcg caacacgcgg tcggacagcg tataaccctt 180
cttcatcaca cccaccacgg tattcggtc ctgttcgctt gccaccgcct gcatcgctt 240
atggatattc ggatcgagct tatcgccgc tttagggttg atttccttga tttgcgtagc 300
atcaaattgt ttctgcaact cgttcaaagt catctgcacg cccattttca gcgcatcgaa 360
attgccgctc tgatccaaaa gcgccatttc cagataatcc ttgaccggca gcatttccac 420
ggcaaacttc tgcggcgga acttggtgct atccgcaatt tyctgctggt ggcggcggcg 480
cagggttttg tcgtttgcca aagcgcgctg ctctgtcttc aactgcgtt ccagctcggc 540
aatccgcgcc tgcaaactct cataagccgg ctctgcggca gcctgttctt gcacaccgtc 600
cgcatttctt actgtttcga cggtttccac cgctccaca ttttcaaccg cttcttcaact 660
gttttgctgc tgtgtctgtt cgctcatatc gtatccctta aaacaaattg gaaatcaaaa 720
tccagttatt accgcgcaa gataaggaca ttttcaagaa acttcaakca aaakcagaga 780
atttcaaatt cattttcaaa tcccctaccg aaaaaataa 819
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<210> 938

<211> 272

<212> PRT

<213> Neisseria meningitidis

<400> 938

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Met Pro Ser Glu Ala Arg Gln Ala Gly Ser Asp Gly Ile Ala Ala Leu
  1             5             10             15

Leu Arg Ser Val Tyr Thr Gln Asn Ala Leu Gln Glu Ile Asn Gln Ile
      20             25             30

Ile Pro Gln Thr Pro Ser Gly Phe Leu Leu Arg His Arg Asn His Ser
      35             40             45

Arg Ala Gln His Ala Val Gly Gln Arg Ile Thr Leu Leu His His Thr
      50             55             60

His His Gly Ile Arg Leu Leu Phe Ala Cys His Arg Leu His Arg Leu
      65             70             75             80

Met Asp Ile Arg Ile Glu Leu Ile Ala Arg Phe Arg Val Asp Phe Leu
      85             90             95

Asp Leu Arg Ser Ile Lys Cys Phe Leu Gln Leu Val Gln Ser His Leu
      100            105            110

His Ala His Phe Gln Arg Ile Glu Ile Ala Ala Leu Ile Gln Lys Arg
      115            120            125

His Phe Gln Ile Ile Leu Asp Arg Gln His Phe His Gly Lys Leu Leu
      130            135            140

Ser Gly Glu Leu Val Arg Ile Arg Asn Phe Leu Leu Val Ala Ala Ala
      145            150            155            160

Gln Val Leu Leu Val Cys Gln Ser Ala Leu Leu Val Phe Gln Leu Arg
      165            170            175
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Phe Gln Leu Gly Asn Pro Arg Leu Gln Ile Leu Ile Ser Arg Leu Cys  
 180 185 190  
 Gly Ser Leu Phe Leu His Thr Val Arg Ile Ser Tyr Cys Phe Asp Gly  
 195 200 205  
 Phe His Arg Leu His Ile Phe Asn Arg Phe Phe Thr Val Leu Leu Leu  
 210 215 220  
 Cys Leu Phe Ala His Ile Val Ser Leu Lys Thr Asn Trp Lys Ser Lys  
 225 230 235 240  
 Ser Ser Tyr Tyr Pro Arg Lys Ile Arg Thr Phe Ser Arg Asn Phe Xaa  
 245 250 255  
 Gln Xaa Gln Arg Ile Ser Asn Ser Phe Ser Asn Pro Leu Pro Lys Lys  
 260 265 270

<210> 939  
 <211> 822  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 939  
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 tatacgcaaa acgcgcttca ggaaataaat cagattattc cccagacgcc ttcaggcttc 120  
 cttctgtgcc accgtaacca tagccgggcg caacacgcgg tcggacagcg tataaccctt 180  
 cttcatcacg cccaccacgg tattgggttc ctgttcgctt gccaccgcct gcacgcctg 240  
 atggatattc ggatcgagct tatcgccgcg tttaggattg atttccttga tttgcgtagc 300  
 atcaaatgct ttctgcaact cgttcaaagt catctgcacg cccattttca gcgcacgaa 360  
 attgcgcctc tgatccaaaa gcgccatttc cagataatcc ttgaccggca gcatttccac 420  
 ggcaaaacttc tgtccggcga acttgtgcgt atccgcgaatt tcctgctggt ggcgggcg 480  
 cagggttttg tcgtttgcca aagcgcgcag ctgctcgtct ttcaactgcg cttccagctc 540  
 ggcaatccgc gcctgcaaat cctcataagc cggtctgcg gcagcctggt cctgcacacc 600  
 gtccgcattt cctactgtct cgacggtttc caccgcctcc acattttcaa ccgcttcttc 660  
 actgttttgc tgctgtgtct gttcgctcat atcgtatccc ttaaaacaaa ttggaaatca 720  
 aaatccagtt attaccgcg caagataagg acattttcaa gaaacttcaa gcaaaggcag 780  
 agaatttcaa attcattttc aaatccccta ccgaaaaaat aa 822

<210> 940  
 <211> 273  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 940  
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 1 5 10 15  
 Leu Arg Ser Val Tyr Thr Gln Asn Ala Leu Gln Glu Ile Asn Gln Ile  
 20 25 30

Ile Pro Gln Thr Pro Ser Gly Phe Leu Leu Cys His Arg Asn His Ser  
           35                          40                          45  
 Arg Ala Gln His Ala Val Gly Gln Arg Ile Thr Leu Leu His His Ala  
           50                          55                          60  
 His His Gly Ile Gly Phe Leu Phe Ala Cys His Arg Leu His Arg Leu  
   65                          70                          75                          80  
 Met Asp Ile Arg Ile Glu Leu Ile Ala Arg Phe Arg Ile Asp Phe Leu  
                           85                          90                          95  
 Asp Leu Arg Ser Ile Lys Cys Phe Leu Gln Leu Val Gln Ser His Leu  
                          100                         105                         110  
 His Ala His Phe Gln Arg Ile Glu Ile Ala Ala Leu Ile Gln Lys Arg  
          115                         120                         125  
 His Phe Gln Ile Ile Leu Asp Arg Gln His Phe His Gly Lys Leu Leu  
   130                         135                         140  
 Ser Gly Glu Leu Val Arg Ile Arg Asn Phe Leu Leu Val Ala Ala Ala  
  145                         150                         155                         160  
 Gln Val Leu Leu Val Cys Gln Ser Ala Gln Leu Leu Val Phe Gln Leu  
                          165                         170                         175  
 Arg Phe Gln Leu Gly Asn Pro Arg Leu Gln Ile Leu Ile Ser Arg Leu  
          180                         185                         190  
 Cys Gly Ser Leu Phe Leu His Thr Val Arg Ile Ser Tyr Cys Leu Asp  
   195                         200                         205  
 Gly Phe His Arg Leu His Ile Phe Asn Arg Phe Phe Thr Val Leu Leu  
   210                         215                         220  
 Leu Cys Leu Phe Ala His Ile Val Ser Leu Lys Thr Asn Trp Lys Ser  
  225                         230                         235                         240  
 Lys Ser Ser Tyr Tyr Pro Arg Lys Ile Arg Thr Phe Ser Arg Asn Phe  
          245                         250                         255  
 Lys Gln Arg Gln Arg Ile Ser Asn Ser Phe Ser Asn Pro Leu Pro Lys  
          260                         265                         270

Lys

<210> 941  
 <211> 510  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 941  
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aatatcgcgc agggcctttgc gggcgaatcc ggtcagttgg tccacgtcgt ctgtaagcgg 180  
tgtgccgagg ttttggtgga acagttcgct gacctgttct ttggttttat ggattgcggg 240  
catcacgata tgggtcgggt tttcgctgc catttggacg ataaactcgc ccaagtcgct 300  
ttccacogcc ttaatgcctt ttgcttcaag ataatgggtc agctcgattt cttcgctgac 360  
catggatttg cttttgacca tcagcttgcc gtttttggct gtgatgatgt cgtggataat 420  
ttggcaggct tcggcagggg tttccgcca gtgtactttc acgccaact tagtcagggt 480  
ttcttccaac tgctccagca gcgcgggtaa 510

<210> 942  
<211> 169  
<212> PRT  
<213> *Neisseria gonorrhoeae*

<400> 942  
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20 25 30  
Gln Ala Asp Ile Gly Ser Ala Val Asn Ile Ala Gln Gly Phe Ala Gly  
35 40 45  
Glu Ser Gly Gln Leu Val His Val Val Cys Lys Arg Cys Ala Glu Val  
50 55 60  
Leu Val Glu Gln Phe Ala Asp Leu Phe Phe Gly Phe Met Asp Cys Gly  
65 70 75 80  
His His Asp Met Gly Arg Phe Phe Ala Cys His Leu Asp Asp Lys Leu  
85 90 95  
Ala Gln Val Ala Phe His Arg Leu Asn Ala Phe Cys Phe Lys Ile Met  
100 105 110  
Val Gln Leu Asp Phe Phe Ala Asp His Gly Phe Ala Phe Asp His Gln  
115 120 125  
Leu Ala Val Phe Gly Cys Asp Asp Val Val Asp Asn Leu Ala Gly Phe  
130 135 140  
Gly Arg Gly Phe Arg Pro Val Tyr Phe His Ala Gln Leu Ser Gln Val  
145 150 155 160  
Phe Phe Gln Leu Leu Gln Gln Arg Gly  
165

<210> 943  
<211> 449  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 943  
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gtacctgttt cagcaacggc aaagtttacg ccaactcaaac cgacatcggc agtgctgtaa 120

atatcgcgca gtgcttttacg ggcgaagccg gtcagttggt ctacatcgtc tgtcagcggc 180  
 gtaccgaggt tttggtggaa cagttcgcta acctgttctt tggttttgtg gatagcaggc 240  
 atcacgatat gggtcgggtt ttcgcctgcc atttggacga tgaactcgcc caagtcgctt 300  
 tctaccgctt taatgcyttt tgcttcaaga taatgrttca gctcgatttc ctcgctgacc 360  
 atcgatttgc ctttgaccat cagcttgccg tttttggctg tgatgatgtc gtggataatt 420  
 tggcaggcctt cggtcggggt ttctgcccc 449

<210> 944

<211> 150

<212> PRT

<213> *Neisseria meningitidis*

<400> 944

Met His Gly Arg Tyr Gly Gly Thr Gln Ala Thr Val Ala Phe Val Phe  
 1 5 10 15

His Gln Thr Gln Arg Thr Cys Phe Ser Asn Gly Lys Val Tyr Ala Thr  
 20 25 30

Gln Thr Asp Ile Gly Ser Ala Val Asn Ile Ala Gln Cys Phe Thr Gly  
 35 40 45

Glu Ala Gly Gln Leu Val Tyr Ile Val Cys Gln Arg Arg Thr Glu Val  
 50 55 60

Leu Val Glu Gln Phe Ala Asn Leu Phe Phe Gly Phe Val Asp Ser Arg  
 65 70 75 80

His His Asp Met Gly Arg Phe Phe Ala Cys His Leu Asp Asp Glu Leu  
 85 90 95

Ala Gln Val Ala Phe Tyr Arg Phe Asn Ala Phe Cys Phe Lys Ile Met  
 100 105 110

Xaa Gln Leu Asp Phe Leu Ala Asp His Arg Phe Ala Phe Asp His Gln  
 115 120 125

Leu Ala Val Phe Gly Cys Asp Asp Val Val Asp Asn Leu Ala Gly Phe  
 130 135 140

Gly Arg Gly Phe Cys Pro  
 145 150

<210> 945

<211> 501

<212> DNA

<213> *Neisseria meningitidis*

<400> 945

atgcacgggc ggaacggtgg tactcaagcg accgttgcct tcgtttttcca ccagacacag 60  
 cgtacctggt tcagcaacgg cgaagttcac gccactcaaa ccgacatcgg cagtgcgtga 120  
 aatatcgcgc agtgcttttac gggcgaagcc ggtcagttgg tctacgtcgt ccgttaacgg 180  
 tgtgccgagg ttttggtgga acagttcgct aacctgttct ttggttttat ggattgcggg 240  
 catcacgata tgggtcgggt tttcacctgc catttggacg atgaactcgc ccaagtcgct 300  
 ttccaccgct ttaatgcctt ttgcttcaag ataatggttc agctcgattt cctcgctgac 360

catcgatttg cctttgacca tcagcttgcc gtttttggt gtgatgatgt cgtggatgat 420  
 ttcgcaggct tcggccggtg tttccgcca gtgtactttt acgccaact tggtcagggt 480  
 ttcttccagc tgctccagca g 501

<210> 946  
 <211> 166  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 946  
 Met His Gly Arg Asn Gly Gly Thr Gln Ala Thr Val Ala Phe Val Phe  
 1 5 10 15  
 His Gln Thr Gln Arg Thr Cys Phe Ser Asn Gly Glu Val His Ala Thr  
 20 25 30  
 Gln Thr Asp Ile Gly Ser Ala Val Asn Ile Ala Gln Cys Phe Thr Gly  
 35 40 45  
 Glu Ala Gly Gln Leu Val Tyr Val Val Arg Arg Cys Ala Glu Val Leu  
 50 55 60  
 Val Glu Gln Phe Ala Asn Leu Phe Phe Gly Phe Met Asp Cys Gly His  
 65 70 75 80  
 His Asp Met Gly Arg Phe Phe Thr Cys His Leu Asp Asp Glu Leu Ala  
 85 90 95  
 Gln Val Ala Phe His Arg Phe Asn Ala Phe Cys Phe Lys Ile Met Val  
 100 105 110  
 Gln Leu Asp Phe Leu Ala Asp His Arg Phe Ala Phe Asp His Gln Leu  
 115 120 125  
 Ala Val Phe Gly Cys Asp Asp Val Val Asp Asp Phe Ala Gly Phe Gly  
 130 135 140  
 Arg Cys Phe Arg Pro Val Tyr Phe Tyr Ala Gln Leu Gly Gln Val Phe  
 145 150 155 160  
 Phe Gln Leu Leu Gln Gln  
 165

<210> 947  
 <211> 981  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 947  
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 attggtgaat ttctggttgc gggcctgctc agtataattg tctgatagc ggtcgtatcg 120  
 agttacttta catcccgga attaaatgat gtggcaaacg agcgtcttgc cattcaacag 180  
 gatttgcgga atgcggcaac attaatgtc cgcgatgcaa gaatggcggg gagcttcggt 240  
 tgtttcaata tgtccgagca tactaaagac gatattgttg attcaagtaa tcaaactcaa 300  
 tctaaccttg caaaacccgg tgccaaacaa gaaaatcccc ttttttcctt aaaaaggagc 360

ggcattggata aacaactgat tcccgttgct gaatccatag atattaaata tccgggtttt 420  
 atccagcgcc ttaacgcatt ggttttccaa tacggtatcg atgattctga tgcgagtgc 480  
 gagactgttg tagtcagcag ctgttccaaa atagcaaaac cgggtaagaa aatatctacc 540  
 ttgcaagaag caaagagtgc attacagatt actaatgatg ataaacaaaa tggaaatata 600  
 acccgctcaga aacatgtggt caatgcctat gcggtcggca ggtttggcaa taataggaa 660  
 agtttgttcc gtttccaatt ggatgataag ggcaagtggg gtaatcctca gttgctcgtg 720  
 aaaaagggtta aacgtatgga tgtgcggtat atttatgtt cgggttgtcc tgaagatgaa 780  
 gatgccggca aagaggaaaa attcagatat acgaataaat tcgacaaatc caaaaatgct 840  
 gttacgcctg ccgggggtgga ggttttattg gatagcggcc ttaatgcaa gattgccgct 900  
 tcttcagaca atagtattta tgcttaccgt atcaatgcga caatacgcg gggaaatgta 960  
 tgcgcaaaaca gaacactttg a 981

<210> 948

<211> 326

<212> PRT

<213> Neisseria gonorrhoeae

<400> 948

Met	Lys	Arg	Lys	Met	Leu	Asn	Val	Pro	Lys	Gly	Gly	Tyr	Asp	Gly	Met
1				5					10					15	

Lys	Gly	Phe	Thr	Ile	Val	Glu	Phe	Leu	Val	Ala	Gly	Leu	Leu	Ser	Ile
			20					25					30		

Ile	Val	Leu	Ile	Ala	Val	Val	Ser	Ser	Tyr	Phe	Thr	Ser	Arg	Lys	Leu
			35					40					45		

Asn	Asp	Val	Ala	Asn	Glu	Arg	Leu	Ala	Ile	Gln	Gln	Asp	Leu	Arg	Asn
	50					55					60				

Ala	Ala	Thr	Leu	Ile	Val	Arg	Asp	Ala	Arg	Met	Ala	Gly	Ser	Phe	Gly
65					70					75					80

Cys	Phe	Asn	Met	Ser	Glu	His	Thr	Lys	Asp	Asp	Ile	Val	Asp	Ser	Ser
			85						90					95	

Asn	Gln	Thr	Gln	Ser	Asn	Leu	Ala	Lys	Pro	Gly	Ala	Lys	Gln	Glu	Asn
			100					105					110		

Pro	Leu	Phe	Ser	Leu	Lys	Arg	Ser	Gly	Met	Asp	Lys	Gln	Leu	Ile	Pro
		115					120					125			

Val	Ala	Glu	Ser	Ile	Asp	Ile	Lys	Tyr	Pro	Gly	Phe	Ile	Gln	Arg	Leu
	130						135				140				

Asn	Ala	Leu	Val	Phe	Gln	Tyr	Gly	Ile	Asp	Asp	Leu	Asp	Ala	Ser	Ala
145					150					155					160

Glu	Thr	Val	Val	Val	Ser	Ser	Cys	Ser	Lys	Ile	Ala	Lys	Pro	Gly	Lys
			165						170					175	

Lys	Ile	Ser	Thr	Leu	Gln	Glu	Ala	Lys	Ser	Ala	Leu	Gln	Ile	Thr	Asn
			180						185				190		

Asp	Asp	Lys	Gln	Asn	Gly	Asn	Ile	Thr	Arg	Gln	Lys	His	Val	Val	Asn
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

195	200	205
Ala Tyr Ala Val Gly Arg Phe Gly Asn Asn Glu Glu Ser Leu Phe Arg		
210	215	220
Phe Gln Leu Asp Asp Lys Gly Lys Trp Gly Asn Pro Gln Leu Leu Val		
225	230	235
Lys Lys Val Lys Arg Met Asp Val Arg Tyr Ile Tyr Val Ser Gly Cys		
	245	250
Pro Glu Asp Glu Asp Ala Gly Lys Glu Glu Lys Phe Arg Tyr Thr Asn		
	260	265
Lys Phe Asp Lys Ser Lys Asn Ala Val Thr Pro Ala Gly Val Glu Val		
	275	280
Leu Leu Asp Ser Gly Leu Asn Ala Lys Ile Ala Ala Ser Ser Asp Asn		
	290	295
Ser Ile Tyr Ala Tyr Arg Ile Asn Ala Thr Ile Arg Gly Gly Asn Val		
305	310	315
Cys Ala Asn Arg Thr Leu		
	325	

<210> 949  
 <211> 676  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 949  
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 attattgaat ttttggttgc gggcctgctc agtatgattg tctgatggc ggtcggatcg 120  
 agttacttca catcccgaa attaaatgat gcggcaaacg agcgtcttgc cgcgcaacag 180  
 gatttgcgga atgcggcaac attgattgtc cgcgatgcca gaatggcagg cggcttcggt 240  
 tgtttcaata tgtccgagca tcttgaact gatgttattc ccgatacgac gcaacaaaat 300  
 tctccttttt ccttaaaaag gaacggtata gataaactta ttcccatagc ggaatcttca 360  
 aatatcaatt atcagaattt tttccagggt gtagcgcat tgatttttca atacggaatc 420  
 gatgatgtta atgcaagcac cgcgactacc gtcgtcagca gctgtgccgc aatatcgaaa 480  
 ccgggcaagc aaatccctac tttagaagat gcaaaaaaag aattgaagat tccggatcag 540  
 gataaggagc aaaatggcaa tatagcgcgt caaaggcatg tggatcaatgc ctatgcggtc 600  
 ggcaggattg ccgatgagga aagtttggtc cgcttccaat tggatgataa gggcaagtgg 660  
 ggtaatcctc agttgc 676

<210> 950  
 <211> 225  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 950  
 Xaa Arg Arg Lys Met Leu Asn Val Xaa Xaa Gly Ser Tyr Asp Gly Met  
 1 5 10 15  
 Lys Gly Phe Thr Ile Ile Glu Phe Leu Val Ala Gly Leu Leu Ser Met

	20		25		30
Ile Val Leu Met Ala Val Gly Ser Ser Tyr Phe Thr Ser Arg Lys Leu					
	35		40		45
Asn Asp Ala Ala Asn Glu Arg Leu Ala Ala Gln Gln Asp Leu Arg Asn					
	50		55		60
Ala Ala Thr Leu Ile Val Arg Asp Ala Arg Met Ala Gly Gly Phe Gly					
	65		70		75
Cys Phe Asn Met Ser Glu His Pro Ala Thr Asp Val Ile Pro Asp Thr					
		85		90	95
Thr Gln Gln Asn Ser Pro Phe Ser Leu Lys Arg Asn Gly Ile Asp Lys					
	100		105		110
Leu Ile Pro Ile Ala Glu Ser Ser Asn Ile Asn Tyr Gln Asn Phe Phe					
	115		120		125
Gln Val Gly Ser Ala Leu Ile Phe Gln Tyr Gly Ile Asp Asp Val Asn					
	130		135		140
Ala Ser Thr Ala Thr Thr Val Val Ser Ser Cys Ala Ala Ile Ser Lys					
	145		150		155
Pro Gly Lys Gln Ile Pro Thr Leu Glu Asp Ala Lys Lys Glu Leu Lys					
		165		170	175
Ile Pro Asp Gln Asp Lys Glu Gln Asn Gly Asn Ile Ala Arg Gln Arg					
	180		185		190
His Val Val Asn Ala Tyr Ala Val Gly Arg Ile Ala Asp Glu Glu Ser					
	195		200		205
Leu Phe Arg Phe Gln Leu Asp Asp Lys Gly Lys Trp Gly Asn Pro Gln					
	210		215		220
Leu					
225					

<210> 951

<211> 999

<212> DNA

<213> Neisseria meningitidis

<400> 951

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atgagacgta aaatgctaaa cgtaccacaaa ggcaattatg atggtatgaa gggttttacc 60
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agttacttca catcccgga attaaatgat gcggcaaacg agcgtctttc cgcgcaacag 180
gatttgcgga atgcggcaac attgattgtc cgcgatgcaa gaatggcagg gggcttcggt 240
tgtttcaata tgtccgagca tactaaaaat gatattattg ttgatccaag taagcaaaact 300
caacatgtcc ctgtaaaacc cggtgccaaa caagaaaatc cccttttttc ttagagagtgg 360
gctaatacta ataatactaa taataatata gctaaattga ttcctattgc tgaatccaca 420
gatattaaat atccgggttt tgcccaggct cgtccggcat tgattttcca atacggcatc 480
gatgatcttg atgcgagtgc tgagactgtt gtagtcagca gctgttccaa aatagcaaaa 540

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ccgggtaaga aaatatctac cttgcaagaa gcaaagagtg cattacagat tactaatgat 600
gataaacaaa atggaaatat caccgtcaa aggcattgtg tcaatgccta tgcggtcggc 660
aggattgccg gtgaggaagg tttgttccgc ttccaattgg atgataaggg caagtggggg 720
aatcctcagt tgctcgtgaa aaagattaga catatgaaag tgcggtatat ctatgtttcc 780
gactgtcctg aagatgacga tgccggcaaa gaggaataat tcaaataac gggtagattc 840
gacagctcca caaatgctgt tacgcccgcc ggggtggagg ttttattgag tancggtact 900
gataccaaga ttgccgcttc ttcagacaat catatttatg cttaccgtat cgatgcgaca 960
atacgcgggg gaaatgtatg cgcaaacaga acactttga 999

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<210> 952

<211> 332

<212> PRT

<213> Neisseria meningitidis

<400> 952

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Met Arg Arg Lys Met Leu Asn Val Pro Lys Gly Asn Tyr Asp Gly Met
  1             5             10             15

Lys Gly Phe Thr Ile Ile Glu Phe Leu Val Ala Gly Met Leu Ser Met
          20             25             30

Ile Val Leu Met Ala Val Gly Ser Tyr Phe Thr Ser Arg Lys Leu
      35             40             45

Asn Asp Ala Ala Asn Glu Arg Leu Ser Ala Gln Gln Asp Leu Arg Asn
      50             55             60

Ala Ala Thr Leu Ile Val Arg Asp Ala Arg Met Ala Gly Gly Phe Gly
      65             70             75             80

Cys Phe Asn Met Ser Glu His Thr Lys Asn Asp Ile Ile Val Asp Pro
          85             90             95

Ser Lys Gln Thr Gln His Val Pro Val Lys Pro Gly Ala Lys Gln Glu
      100             105             110

Asn Pro Leu Phe Ser Leu Glu Trp Ala Asn Thr Asn Asn Thr Asn Asn
      115             120             125

Asn Thr Ala Lys Leu Ile Pro Ile Ala Glu Ser Thr Asp Ile Lys Tyr
      130             135             140

Pro Gly Phe Ala Gln Ala Arg Pro Ala Leu Ile Phe Gln Tyr Gly Ile
      145             150             155             160

Asp Asp Leu Asp Ala Ser Ala Glu Thr Val Val Val Ser Ser Cys Ser
          165             170             175

Lys Ile Ala Lys Pro Gly Lys Lys Ile Ser Thr Leu Gln Glu Ala Lys
      180             185             190

Ser Ala Leu Gln Ile Thr Asn Asp Asp Lys Gln Asn Gly Asn Ile Thr
      195             200             205

Arg Gln Arg His Val Val Asn Ala Tyr Ala Val Gly Arg Ile Ala Gly
      210             215             220

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Glu Glu Gly Leu Phe Arg Phe Gln Leu Asp Asp Lys Gly Lys Trp Gly  
 225 230 235 240

Asn Pro Gln Leu Leu Val Lys Lys Ile Arg His Met Lys Val Arg Tyr  
 245 250 255

Ile Tyr Val Ser Asp Cys Pro Glu Asp Asp Asp Ala Gly Lys Glu Glu  
 260 265 270

Lys Phe Lys Tyr Thr Gly Thr Phe Asp Ser Ser Thr Asn Ala Val Thr  
 275 280 285

Pro Ala Gly Val Glu Val Leu Leu Ser Xaa Gly Thr Asp Thr Lys Ile  
 290 295 300

Ala Ala Ser Ser Asp Asn His Ile Tyr Ala Tyr Arg Ile Asp Ala Thr  
 305 310 315 320

Ile Arg Gly Gly Asn Val Cys Ala Asn Arg Thr Leu  
 325 330

<210> 953

<211> 666

<212> DNA

<213> Neisseria gonorrhoeae

<400> 953

cccgggtgcc aacaagaaaa tccccttttt tccttaaaaa ggagcggcat ggataaacia 60  
 ctgattcccg ttgctgaatc catagatatt aaatatccgg gttttatcca gcgccttaac 120  
 gcattggttt tccaatacgg tatcgatgat cttgatgcga gtgctgagac tgttgtagtc 180  
 agcagctgtt ccaaaatagc aaaaccgggt aagaaaatat ctaccttgca agaagcaaag 240  
 agtgcattac agattactaa tgatgataaa caaaatggaa atatcaccgg tcagaaacat 300  
 gtgggtcaatg cctatgcggt cggcagggtt ggcaataatg aggaaagttt gttccgcttc 360  
 caattggatg ataagggcaa gtggggtaat cctcagttgc tcgtgaaaaa gggttaaact 420  
 atggatgtgc ggtatattta tgtttccggt tgtcctgaag atgaagatgc cggcaaagag 480  
 gaaaaattca gatatacgaa taaattcgac aaatccaaaa atgctgttac gcctgccggg 540  
 gtggagggtt tattggatag cggccttaat gccaaagattg ccgcttcttc agacaatagt 600  
 atttatgctt accgtatcaa tgcgacaata cgcgggggaa atgtatgcgc aaacagaaca 660  
 ctttga 666

<210> 954

<211> 221

<212> PRT

<213> Neisseria gonorrhoeae

<400> 954

Pro Gly Ala Lys Gln Glu Asn Pro Leu Phe Ser Leu Lys Arg Ser Gly  
 1 5 10 15

Met Asp Lys Gln Leu Ile Pro Val Ala Glu Ser Ile Asp Ile Lys Tyr  
 20 25 30

Pro Gly Phe Ile Gln Arg Leu Asn Ala Leu Val Phe Gln Tyr Gly Ile  
 35 40 45



Asp Asp Leu Asp Ala Ser Ala Glu Thr Val Val Val Ser Ser Cys Ser  
 50 55 60  
 Lys Ile Ala Lys Pro Gly Lys Lys Ile Ser Thr Leu Gln Glu Ala Lys  
 65 70 75 80  
 Ser Ala Leu Gln Ile Thr Asn Asp Asp Lys Gln Asn Gly Asn Ile Thr  
 85 90 95  
 Arg Gln Lys His Val Val Asn Ala Tyr Ala Val Gly Arg Phe Gly Asn  
 100 105 110  
 Asn Glu Glu Ser Leu Phe Arg Phe Gln Leu Asp Asp Lys Gly Lys Trp  
 115 120 125  
 Gly Asn Pro Gln Leu Leu Val Lys Lys Val Lys Arg Met Asp Val Arg  
 130 135 140  
 Tyr Ile Tyr Val Ser Gly Cys Pro Glu Asp Glu Asp Ala Gly Lys Glu  
 145 150 155 160  
 Glu Lys Phe Arg Tyr Thr Asn Lys Phe Asp Lys Ser Lys Asn Ala Val  
 165 170 175  
 Thr Pro Ala Gly Val Glu Val Leu Leu Asp Ser Gly Leu Asn Ala Lys  
 180 185 190  
 Ile Ala Ala Ser Ser Asp Asn Ser Ile Tyr Ala Tyr Arg Ile Asn Ala  
 195 200 205  
 Thr Ile Arg Gly Gly Asn Val Cys Ala Asn Arg Thr Leu  
 210 215 220

<210> 955  
 <211> 942  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 955  
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 attattgaat ttttggttgc gggcctgctc agtatgattg tctgatggc ggtcggatcg 120  
 agttacttca catcccgaa attaaatgat gcggcaaagc agcgtcttgc cgcgcaacag 180  
 gatttgcgga atgcggcaac attgattgtc cgcgatgcga gaatggcagg cggcttcggg 240  
 tgtttcaata tgtccgagca tctgcaact gatgttattc ccgatacgac gcaacaaaat 300  
 tctccttttt ccttaaaaag gaacggtata gataaactta ttcccatagc ggaatcttca 360  
 aatatcaatt atcagaattt tttccagggt ggtagcgc atgatttttca atacggaatc 420  
 gatgatgtta atgcaagcac cgcgactacc gtcgtcagca gctgtgccgc aatatcgaaa 480  
 ccgggcaagc aaatccctac tttagaagat gcaaaaaaag aattgaagat tccggatcag 540  
 gataaggagc aaaatggcaa tatagcgcgt caaaggcatg tggatcaatgc ctatgcggtc 600  
 ggcaggattg ccgatgagga aggtttgttc cgcttccaat tggatgataa gggcaagtgg 660  
 ggtaatcctc agttgctcgt gaaaaagggt agacatatga aagtgcggta tatctatgtt 720  
 tccggtgtgc ctgaagatga cgatgccggc aaagaggaaa cattcaaata tacggataaa 780  
 ttcgacagcg cccaaaatgc tgttacgccc gccgggggtg aggtttttatt gagtagcggg 840  
 actgatacca agattgccgc ttcttcagac aatcatattt atgcttaccg tatcgatgcg 900  
 acaatacgcg ggggaaatgt atgcgcaaac agaacacttt ga 942

<210> 956  
 <211> 313  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 956

Met	Arg	Arg	Lys	Met	Leu	Asn	Val	Pro	Lys	Gly	Ser	Tyr	Asp	Gly	Met
1				5					10					15	
Lys	Gly	Phe	Thr	Ile	Ile	Glu	Phe	Leu	Val	Ala	Gly	Leu	Leu	Ser	Met
			20					25					30		
Ile	Val	Leu	Met	Ala	Val	Gly	Ser	Ser	Tyr	Phe	Thr	Ser	Arg	Lys	Leu
		35					40					45			
Asn	Asp	Ala	Ala	Asn	Glu	Arg	Leu	Ala	Ala	Gln	Gln	Asp	Leu	Arg	Asn
	50					55					60				
Ala	Ala	Thr	Leu	Ile	Val	Arg	Asp	Ala	Arg	Met	Ala	Gly	Gly	Phe	Gly
65					70				75						80
Cys	Phe	Asn	Met	Ser	Glu	His	Pro	Ala	Thr	Asp	Val	Ile	Pro	Asp	Thr
				85					90					95	
Thr	Gln	Gln	Asn	Ser	Pro	Phe	Ser	Leu	Lys	Arg	Asn	Gly	Ile	Asp	Lys
			100					105					110		
Leu	Ile	Pro	Ile	Ala	Glu	Ser	Ser	Asn	Ile	Asn	Tyr	Gln	Asn	Phe	Phe
		115					120					125			
Gln	Val	Gly	Ser	Ala	Leu	Ile	Phe	Gln	Tyr	Gly	Ile	Asp	Asp	Val	Asn
	130					135					140				
Ala	Ser	Thr	Ala	Thr	Thr	Val	Val	Ser	Ser	Cys	Ala	Ala	Ile	Ser	Lys
145					150					155					160
Pro	Gly	Lys	Gln	Ile	Pro	Thr	Leu	Glu	Asp	Ala	Lys	Lys	Glu	Leu	Lys
				165					170					175	
Ile	Pro	Asp	Gln	Asp	Lys	Glu	Gln	Asn	Gly	Asn	Ile	Ala	Arg	Gln	Arg
			180					185					190		
His	Val	Val	Asn	Ala	Tyr	Ala	Val	Gly	Arg	Ile	Ala	Asp	Glu	Glu	Gly
		195					200					205			
Leu	Phe	Arg	Phe	Gln	Leu	Asp	Asp	Lys	Gly	Lys	Trp	Gly	Asn	Pro	Gln
	210					215					220				
Leu	Leu	Val	Lys	Lys	Val	Arg	His	Met	Lys	Val	Arg	Tyr	Ile	Tyr	Val
225					230					235					240
Ser	Gly	Cys	Pro	Glu	Asp	Asp	Asp	Ala	Gly	Lys	Glu	Glu	Thr	Phe	Lys
				245					250					255	
Tyr	Thr	Asp	Lys	Phe	Asp	Ser	Ala	Gln	Asn	Ala	Val	Thr	Pro	Ala	Gly

260	265	270
Val Glu Val Leu Leu Ser Ser Gly Thr Asp Thr Lys Ile Ala Ala Ser		
275	280	285
Ser Asp Asn His Ile Tyr Ala Tyr Arg Ile Asp Ala Thr Ile Arg Gly		
290	295	300
Gly Asn Val Cys Ala Asn Arg Thr Leu		
305	310	

<210> 957  
 <211> 618  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 957  
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 gccaggctc gtccggcatt gattttccaa tacggcatcg atgatcttga tgcgagtgtc 120  
 gagactgttg tagtcagcag ctgttccaaa atagcaaaac cgggtaagaa aatatctacc 180  
 ttgcaagaag caaagagtgc attacagatt actaatgatg ataaacaaaa tggaaatatc 240  
 acccgtaaaa ggcatgtggt caatgcctat gcggtcggca ggattgccgg tgaggaaggt 300  
 ttgttccgct tccaattgga tgataagggc aagtggggta atcctcagtt gctcgtgaaa 360  
 aagattagac atatgaaaagt gcggtatatc tatgtttccg actgtcctga agatgacgat 420  
 gccggcaaaag aggaaaaaatt caaatatacg ggtacattcg acagctccac aaatgctgtt 480  
 acgcccggcg ggggtggaggt tttattgagt agcgggtactg ataccaagat tgccgcttct 540  
 tcagacaatc atatttatgc ttaccgtatc gatgcgacaa tacgcggggg aaatgtatgc 600  
 gcaaacagaa cactttga 618

<210> 958  
 <211> 205  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 958  
 Asn Asn Thr Ala Lys Leu Ile Pro Ile Ala Glu Ser Thr Asp Ile Lys  
 1 5 10 15  
 Tyr Pro Gly Phe Ala Gln Ala Arg Pro Ala Leu Ile Phe Gln Tyr Gly  
 20 25 30  
 Ile Asp Asp Leu Asp Ala Ser Ala Glu Thr Val Val Val Ser Ser Cys  
 35 40 45  
 Ser Lys Ile Ala Lys Pro Gly Lys Lys Ile Ser Thr Leu Gln Glu Ala  
 50 55 60  
 Lys Ser Ala Leu Gln Ile Thr Asn Asp Asp Lys Gln Asn Gly Asn Ile  
 65 70 75 80  
 Thr Arg Gln Arg His Val Val Asn Ala Tyr Ala Val Gly Arg Ile Ala  
 85 90 95  
 Gly Glu Glu Gly Leu Phe Arg Phe Gln Leu Asp Asp Lys Gly Lys Trp  
 100 105 110

Gly Asn Pro Gln Leu Leu Val Lys Lys Ile Arg His Met Lys Val Arg  
115 120 125

Tyr Ile Tyr Val Ser Asp Cys Pro Glu Asp Asp Asp Ala Gly Lys Glu  
130 135 140

Glu Lys Phe Lys Tyr Thr Gly Thr Phe Asp Ser Ser Thr Asn Ala Val  
145 150 155 160

Thr Pro Ala Gly Val Glu Val Leu Leu Ser Ser Gly Thr Asp Thr Lys  
165 170 175

Ile Ala Ala Ser Ser Asp Asn His Ile Tyr Ala Tyr Arg Ile Asp Ala  
180 185 190

Thr Ile Arg Gly Gly Asn Val Cys Ala Asn Arg Thr Leu  
195 200 205

<210> 959

<211> 612

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 959

atgcgcaaac agaacacttt gacaggaatc ccgacttctg acggacagag ggggtccgca 60  
ctgtttatcg tgctgatggt gatgatagtc gtggcctttt tggttgtaac tgccgcccag 120  
tcctacaata ccgaacagag gatcagtgcc aacgaatcag acaggaaatt ggctttgtct 180  
ttagccgagg cggttttgcg ggaggggcgaa tticagggtt tggatttgga atatgctgcg 240  
gacagtaagg ttacgttttag cgaaaactgt gaaaaaggtc tgtgtaccgc agtgaatgtg 300  
cggacaaata ataatggtag tgaagaggct tttggcaata tcgtgggtgca aggcaagccc 360  
gccgttgagg cggtgaaacg ttcttgccct gcaaagtctg gcaaaaattc taccgacctg 420  
tgcattgaca ataaagggat ggaatataat aaaggcgcgg caggcgtcag caaatgccg 480  
cgctatatta tcgaatattt aggcgtgaag aacggacaaa atgtttatcg ggttactgcc 540  
aaggcttggg gtaagaatgc caataccgtg gtcgtccttc aatcttatgt aggcaataat 600  
gatgagcaat aa 612

<210> 960

<211> 203

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 960

Met Arg Lys Gln Asn Thr Leu Thr Gly Ile Pro Thr Ser Asp Gly Gln  
1 5 10 15

Arg Gly Ser Ala Leu Phe Ile Val Leu Met Val Met Ile Val Val Ala  
20 25 30

Phe Leu Val Val Thr Ala Ala Gln Ser Tyr Asn Thr Glu Gln Arg Ile  
35 40 45

Ser Ala Asn Glu Ser Asp Arg Lys Leu Ala Leu Ser Leu Ala Glu Ala  
50 55 60

Ala Leu Arg Glu Gly Glu Phe Gln Val Leu Asp Leu Glu Tyr Ala Ala  
65 70 75 80

Asp Ser Lys Val Thr Phe Ser Glu Asn Cys Glu Lys Gly Leu Cys Thr  
85 90 95

Ala Val Asn Val Arg Thr Asn Asn Asn Gly Ser Glu Glu Ala Phe Gly  
100 105 110

Asn Ile Val Val Gln Gly Lys Pro Ala Val Glu Ala Val Lys Arg Ser  
115 120 125

Cys Pro Ala Lys Ser Gly Lys Asn Ser Thr Asp Leu Cys Ile Asp Asn  
130 135 140

Lys Gly Met Glu Tyr Asn Lys Gly Ala Ala Gly Val Ser Lys Met Pro  
145 150 155 160

Arg Tyr Ile Ile Glu Tyr Leu Gly Val Lys Asn Gly Gln Asn Val Tyr  
165 170 175

Arg Val Thr Ala Lys Ala Trp Gly Lys Asn Ala Asn Thr Val Val Val  
180 185 190

Leu Gln Ser Tyr Val Gly Asn Asn Asp Glu Gln  
195 200

<210> 961  
<211> 541  
<212> DNA  
<213> Neisseria meningitidis

<400> 961  
gggtttgcac tgttaatcgt gctgatggtg atratcgctcg tggcttywtg gwtgtaactg 60  
ccgcgcagtc ttacaatacc gagcagcgka tcagtkccaa cgaatcagac aggaaattgg 120  
ctwtgtcttt ggccgagkcg kctwtgcggg aaggcgaact tcagggtttg gatttggaat 180  
atgatacggg cagtaagggtt acatttagcg aaaactgtgg aaaagggtctg tstgccgcag 240  
tgaatgtgcg gacaaataat gataatgaag aggccttttga caatatcggtg gtgcaaggca 300  
agcccaccgt tgaggcggtg aagcgttctt gccctgcaaa ttctaccgac ctgtgcattg 360  
acaagaaagg gwtggaatat aagaaaggca cgagaagcgt cacaaaatgc cacgttatat 420  
tatcgaatat ttgggcgtgw agaacggaga aaatgtttat cgggttactg ccaaggcttg 480  
gggtaagaat gccaataccg tggctgctct tcaatcttat gtaagcaata atgatgagta 540  
a 541

<210> 962  
<211> 180  
<212> PRT  
<213> Neisseria meningitidis

<400> 962  
Gly Phe Ala Leu Leu Ile Val Leu Met Val Xaa Ile Val Val Ala Phe  
1 5 10 15

Xaa Xaa Val Thr Ala Ala Gln Ser Tyr Asn Thr Glu Gln Arg Ile Ser  
20 25 30

Xaa Asn Glu Ser Asp Arg Lys Leu Ala Xaa Ser Leu Ala Glu Xaa Xaa  
           35                          40                          45  
 Xaa Arg Glu Gly Glu Leu Gln Val Leu Asp Leu Glu Tyr Asp Thr Asp  
           50                          55                          60  
 Ser Lys Val Thr Phe Ser Glu Asn Cys Gly Lys Gly Leu Xaa Ala Ala  
           65                          70                          75                          80  
 Val Asn Val Arg Thr Asn Asn Asp Asn Glu Glu Ala Phe Asp Asn Ile  
                           85                          90                          95  
 Val Val Gln Gly Lys Pro Thr Val Glu Ala Val Lys Arg Ser Cys Pro  
                           100                          105                          110  
 Ala Asn Ser Thr Asp Leu Cys Ile Asp Lys Lys Gly Xaa Glu Tyr Lys  
           115                          120                          125  
 Lys Gly Thr Arg Ser Val Thr Lys Met Pro Arg Tyr Ile Ile Glu Tyr  
           130                          135                          140  
 Leu Gly Val Xaa Asn Gly Glu Asn Val Tyr Arg Val Thr Ala Lys Ala  
           145                          150                          155                          160  
 Trp Gly Lys Asn Ala Asn Thr Val Val Val Leu Gln Ser Tyr Val Ser  
                           165                          170                          175  
 Asn Asn Asp Glu  
                           180

<210> 963  
 <211> 594  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 963  
 atgcgcaaac agaacacttt gacgggaatc ccgacttctg acggacagag ggggtttgca 60  
 ctgtttatcg tgotgatggg gatgatcgtc gtggcttttt tggttgtaac tgccgcgcag 120  
 tcttacaata ccgagcagcg gatcagtgcc aacgaatcag acaggaaatt ggctttgtct 180  
 ttggccgagg cggcttttgcg ggaaggcgaa cttcagggtt tggatttga atatgatacg 240  
 gacagtaagg ttacatttag cgaaaactgt ggaaaaggtc tgtgtaccgc agtgaatgtg 300  
 cggacaaata atgataatga agaggctttt gacaatatcg tggtgcaagg caagcccacc 360  
 gttgaggcgg tgaagcggtc ttgcactgca aaatctacag gcctgtgcat tgacaataaa 420  
 gggatggaat ataagaaagg cagcgaagc gtcagcaaaa tgccacgtta tattatcgaa 480  
 tatttgggcg tgaagaacgg agaaaatgtt tatcggggta ctgccaaaggc ttggggtaag 540  
 aatgccaata ccgtggtcgt ccttcaatct tatgtaagca ataatgatga gtaa 594

<210> 964  
 <211> 197  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 964  
 Met Arg Lys Gln Asn Thr Leu Thr Gly Ile Pro Thr Ser Asp Gly Gln

1                      5                      10                      15  
 Arg Gly Phe Ala Leu Phe Ile Val Leu Met Val Met Ile Val Val Ala  
                     20                      25                      30  
 Phe Leu Val Val Thr Ala Ala Gln Ser Tyr Asn Thr Glu Gln Arg Ile  
                     35                      40                      45  
 Ser Ala Asn Glu Ser Asp Arg Lys Leu Ala Leu Ser Leu Ala Glu Ala  
                     50                      55                      60  
 Ala Leu Arg Glu Gly Glu Leu Gln Val Leu Asp Leu Glu Tyr Asp Thr  
                     65                      70                      75                      80  
 Asp Ser Lys Val Thr Phe Ser Glu Asn Cys Gly Lys Gly Leu Cys Thr  
                     85                      90                      95  
 Ala Val Asn Val Arg Thr Asn Asn Asp Asn Glu Glu Ala Phe Asp Asn  
                     100                      105                      110  
 Ile Val Val Gln Gly Lys Pro Thr Val Glu Ala Val Lys Arg Ser Cys  
                     115                      120                      125  
 Thr Ala Lys Ser Thr Gly Leu Cys Ile Asp Asn Lys Gly Met Glu Tyr  
                     130                      135                      140  
 Lys Lys Gly Thr Gln Ser Val Ser Lys Met Pro Arg Tyr Ile Ile Glu  
                     145                      150                      155                      160  
 Tyr Leu Gly Val Lys Asn Gly Glu Asn Val Tyr Arg Val Thr Ala Lys  
                     165                      170                      175  
 Ala Trp Gly Lys Asn Ala Asn Thr Val Val Val Leu Gln Ser Tyr Val  
                     180                      185                      190  
 Ser Asn Asn Asp Glu  
                     195

<210> 965  
 <211> 594  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 965  
 atgcgcaaac agaacacttt gacgggaatc ccgacttctg acggacagag ggggtttgca 60  
 ctgtttatcg tgctgatggt gatgatcgtc gtggcttttt tggttgtaac tgccgcgcag 120  
 tcttacaata ccgagcagcg gatcagtgcc aacgaatcag acaggaaatt ggctttgtct 180  
 ttggccgagg cggttttgcg ggaaggcgaa cttcagggtt tggatttga atatgatacg 240  
 gacagtaagg ttacattttag cgaaaactgt ggaaaaggtc tgtgtgccgc agtgaatgtg 300  
 cggacaaata atgataatga agaggctttt gacaatatcg tggtgcaagg caagcccacc 360  
 gttgaggcgg tgaagcggtc ttgccctgca aattctaccg acctgtgcat tgacaagaaa 420  
 gggatggaat ataagaaagg caccagaaagc gtcagcaaaa tgccacgtta tattatcgaa 480  
 tatttgggcg tgaagaacgg agaaaatgtt tatcgggtta ctgccaaggc ttggggtaag 540  
 aatgccaaata ccgtggtcgt ctttcaatct tatgtaagca ataagatga gtaa 594

<210> 966  
 <211> 197  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 966  
 Met Arg Lys Gln Asn Thr Leu Thr Gly Ile Pro Thr Ser Asp Gly Gln  
 1 5 10 15  
 Arg Gly Phe Ala Leu Phe Ile Val Leu Met Val Met Ile Val Val Ala  
 20 25 30  
 Phe Leu Val Val Thr Ala Ala Gln Ser Tyr Asn Thr Glu Gln Arg Ile  
 35 40 45  
 Ser Ala Asn Glu Ser Asp Arg Lys Leu Ala Leu Ser Leu Ala Glu Ala  
 50 55 60  
 Ala Leu Arg Glu Gly Glu Leu Gln Val Leu Asp Leu Glu Tyr Asp Thr  
 65 70 75 80  
 Asp Ser Lys Val Thr Phe Ser Glu Asn Cys Gly Lys Gly Leu Cys Ala  
 85 90 95  
 Ala Val Asn Val Arg Thr Asn Asn Asp Asn Glu Glu Ala Phe Asp Asn  
 100 105 110  
 Ile Val Val Gln Gly Lys Pro Thr Val Glu Ala Val Lys Arg Ser Cys  
 115 120 125  
 Pro Ala Asn Ser Thr Asp Leu Cys Ile Asp Lys Lys Gly Met Glu Tyr  
 130 135 140  
 Lys Lys Gly Thr Arg Ser Val Ser Lys Met Pro Arg Tyr Ile Ile Glu  
 145 150 155 160  
 Tyr Leu Gly Val Lys Asn Gly Glu Asn Val Tyr Arg Val Thr Ala Lys  
 165 170 175  
 Ala Trp Gly Lys Asn Ala Asn Thr Val Val Val Leu Gln Ser Tyr Val  
 180 185 190  
 Ser Asn Asn Asp Glu  
 195

<210> 967  
 <211> 612  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 967  
 atgaagaata atgattgctt ggcctgaaa aatccccagt ccggtatggc gttgatagaa 60  
 gtcttggtcg ctatgctcgt tctgaccatc ggtattttgg cattgctgtc cgtacagttg 120  
 cggacagtcg cttccgtcag ggaggcggaa acgcaaacca tcgtcagcca aatcacgcaa 180  
 aacctgatgg aaggaatgtt gatgaatccg accattgatt tggacagcaa caagaaaaac 240  
 tatagtcttt acatgggaaa acagacacta tcagctgtgg atggtgagtt tatgcttgat 300



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gccgagaaaa gtaaggcgca gttggcagag gaacaattga agagatttag tcatgagctg 360
aaaaatgcct tgccggatgc ggtagctatt cattacgccg tctgcaagga ttcgtcgggt 420
gacgcgccga cattgtccga cagcgggtgt ttttcttcaa attgcgacaa taaggcaaac 480
ggggatactt tgattaaagt attgtgggta aatgattcgg caggggattc ggatatttcc 540
cgtacgaatc ttgaagtgag cggcgacaat atcgtatata cctatcaggc aagggtcggg 600
ggtcgtgaat ga                                     612

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<210> 968  
 <211> 203  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 968  
 Met Lys Asn Asn Asp Cys Leu Arg Leu Lys Asn Pro Gln Ser Gly Met  
   1                  5                  10                  15  
 Ala Leu Ile Glu Val Leu Val Ala Met Leu Val Leu Thr Ile Gly Ile  
           20                  25                  30  
 Leu Ala Leu Leu Ser Val Gln Leu Arg Thr Val Ala Ser Val Arg Glu  
           35                  40                  45  
 Ala Glu Thr Gln Thr Ile Val Ser Gln Ile Thr Gln Asn Leu Met Glu  
           50                  55                  60  
 Gly Met Leu Met Asn Pro Thr Ile Asp Leu Asp Ser Asn Lys Lys Asn  
           65                  70                  75                  80  
 Tyr Ser Leu Tyr Met Gly Lys Gln Thr Leu Ser Ala Val Asp Gly Glu  
                   85                  90                  95  
 Phe Met Leu Asp Ala Glu Lys Ser Lys Ala Gln Leu Ala Glu Glu Gln  
           100                  105                  110  
 Leu Lys Arg Phe Ser His Glu Leu Lys Asn Ala Leu Pro Asp Ala Val  
           115                  120                  125  
 Ala Ile His Tyr Ala Val Cys Lys Asp Ser Ser Gly Asp Ala Pro Thr  
           130                  135                  140  
 Leu Ser Asp Ser Gly Ala Phe Ser Ser Asn Cys Asp Asn Lys Ala Asn  
           145                  150                  155                  160  
 Gly Asp Thr Leu Ile Lys Val Leu Trp Val Asn Asp Ser Ala Gly Asp  
           165                  170                  175  
 Ser Asp Ile Ser Arg Thr Asn Leu Glu Val Ser Gly Asp Asn Ile Val  
           180                  185                  190  
 Tyr Thr Tyr Gln Ala Arg Val Gly Gly Arg Glu  
           195                  200

<210> 969  
 <211> 609  
 <212> DNA

<213> Neisseria meningitidis

<400> 969

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atgaagaata atgattgctt ccgcctgaaa gattcccagt ccggtatggc gctgatagaa 60
gtcttggttg ctatgctcgt tctgaccatc ggtatttttg cactattgtc tgtacagttg 120
cggacagtcn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 180
nnnttgatgg agggaatggt gatgaatccg accattgatt cggacagcaa caagaaaaac 240
tataatcttt acatgggaaa ccatacacta tcagctgtgg atggcgattt tgcgattgat 300
gccatgaaaa ctaaggggca attggcagag gcacaattga agagatttag ttatgagctg 360
aaaaatgcct tgccggatgc ggcagccatc cattacgccg tctgcaagga ttcgtcgggt 420
aacgcgccga cattgtccgg caatgctttt tcttcaaatt ggcacaataa ggcaaacggg 480
gataactttaa ttaaagtatt gtgggtaaat gattcggcag gggattcgga tatttcccgt 540
acgaatcttg aggtgagcgg cgacaatatc gtatatactt atcaggcaag ggtcggaggt 600
cggaatga 609
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<210> 970

<211> 202

<212> PRT

<213> Neisseria meningitidis

<400> 970

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Met Lys Asn Asn Asp Cys Phe Arg Leu Lys Asp Ser Gln Ser Gly Met
  1             5             10             15

Ala Leu Ile Glu Val Leu Val Ala Met Leu Val Leu Thr Ile Gly Ile
      20             25             30

Leu Ala Leu Leu Ser Val Gln Leu Arg Thr Val Xaa Xaa Xaa Xaa Xaa
      35             40             45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Met Glu
      50             55             60

Gly Met Leu Met Asn Pro Thr Ile Asp Ser Asp Ser Asn Lys Lys Asn
      65             70             75             80

Tyr Asn Leu Tyr Met Gly Asn His Thr Leu Ser Ala Val Asp Gly Asp
      85             90             95

Phe Ala Ile Asp Ala Met Lys Thr Lys Gly Gln Leu Ala Glu Ala Gln
      100            105            110

Leu Lys Arg Phe Ser Tyr Glu Leu Lys Asn Ala Leu Pro Asp Ala Ala
      115            120            125

Ala Ile His Tyr Ala Val Cys Lys Asp Ser Ser Gly Asn Ala Pro Thr
      130            135            140

Leu Ser Gly Asn Ala Phe Ser Ser Asn Cys Asp Asn Lys Ala Asn Gly
      145            150            155            160

Asp Thr Leu Ile Lys Val Leu Trp Val Asn Asp Ser Ala Gly Asp Ser
      165            170            175

Asp Ile Ser Arg Thr Asn Leu Glu Val Ser Gly Asp Asn Ile Val Tyr
      180            185            190
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Thr Tyr Gln Ala Arg Val Gly Gly Arg Glu  
195 200

<210> 971  
<211> 615  
<212> DNA  
<213> Neisseria meningitidis

<400> 971  
atgaagaata atgattgctt ccgcctgaaa aacccccagt ccggtatggc gctgatagaa 60  
gtcttggtcg ctatgctcgt tctgaccatc ggtatttttg cactattgtc tggtcagttg 120  
cggacagtcg cttccgtcag ggaggcagag acgcaaacca tcgtcagtca aatcacgcaa 180  
aacctgatgg aaggaatggt gatgaatccg accattgatt cggacagcaa caagaaaaac 240  
tataatcttt acatgggaaa ccatcatgca ctatcagttg tggatggcga ttttcagggt 300  
gatgccataa aaactaagac gcagttggca gaggcacaat tgaagagatt tagttatgag 360  
ctgaaaaatg ccttgccgga tgcggcagcc atccattacg ccgtctgcaa ggattcgtcg 420  
ggtgttgccg cgacattgtc cgccggcagt actttttctt caaattgcga tggtagtgca 480  
aatgggggata ctttgattaa agtattgtgg gtaaattgatt cggcagggga ttcggatatc 540  
gcccgtaacga atcttgagac gaacggcaac aatatcgtat atacctatca ggcaagggtc 600  
ggaggtcggg aatga 615

<210> 972  
<211> 204  
<212> PRT  
<213> Neisseria meningitidis

<400> 972  
Met Lys Asn Asn Asp Cys Phe Arg Leu Lys Asn Pro Gln Ser Gly Met.  
1 5 10 15  
Ala Leu Ile Glu Val Leu Val Ala Met Leu Val Leu Thr Ile Gly Ile  
20 25 30  
Leu Ala Leu Leu Ser Val Gln Leu Arg Thr Val Ala Ser Val Arg Glu  
35 40 45  
Ala Glu Thr Gln Thr Ile Val Ser Gln Ile Thr Gln Asn Leu Met Glu  
50 55 60  
Gly Met Leu Met Asn Pro Thr Ile Asp Ser Asp Ser Asn Lys Lys Asn  
65 70 75 80  
Tyr Asn Leu Tyr Met Gly Asn His His Ala Leu Ser Val Val Asp Gly  
85 90 95  
Asp Phe Gln Val Asp Ala Ile Lys Thr Lys Thr Gln Leu Ala Glu Ala  
100 105 110  
Gln Leu Lys Arg Phe Ser Tyr Glu Leu Lys Asn Ala Leu Pro Asp Ala  
115 120 125  
Ala Ala Ile His Tyr Ala Val Cys Lys Asp Ser Ser Gly Val Ala Pro  
130 135 140

Thr Leu Ser Ala Gly Ser Thr Phe Ser Ser Asn Cys Asp Gly Ser Ala  
145 150 155 160

Asn Gly Asp Thr Leu Ile Lys Val Leu Trp Val Asn Asp Ser Ala Gly  
165 170 175

Asp Ser Asp Ile Ala Arg Thr Asn Leu Glu Thr Asn Gly Asn Asn Ile  
180 185 190

Val Tyr Thr Tyr Gln Ala Arg Val Gly Gly Arg Glu  
195 200

<210> 973

<211> 609

<212> DNA

<213> Neisseria meningitidis

<400> 973

atgaagaata atgattgctt ccgcctgaaa gattcccagt ccggtatggc gctgatagaa 60  
gtcttggttg ctatgctcgt tctgaccatc ggtatttttg cactattgtc tgtacagttg 120  
cggacagtcg cttccgtcag ggaggcggag acacaaacca tcgtcagcca aatcacgcaa 180  
aacctgatgg agggaatggt gatgaatccg accattgatt cggacagcaa caagaaaaac 240  
tataatcttt acatgggaaa ccatacacta tcagctgtgg atggcgattt tgcgattgat 300  
gccatgaaaa ctaaggggca attggcagag gcacaattga agagatttag ttatgagctg 360  
aaaaatgcct tgccggatgc ggcagccatc cattacgccg tctgcaagga ttcgtcgggt 420  
aacgcgccga cattgtccgg caatgctttt tcttcaaatt gcgacaataa ggcaaacggg 480  
gatactttaa ttaaagtatt gtgggtaaat gattcggcag gggattcggg tatttcccgt 540  
acgaatcttg aggtgagcgg cgacaatatc gtatatactt atcaggcaag ggtcggagggt 600  
cgggaatga 609

<210> 974

<211> 202

<212> PRT

<213> Neisseria meningitidis

<400> 974

Met Lys Asn Asn Asp Cys Phe Arg Leu Lys Asp Ser Gln Ser Gly Met  
1 5 10 15

Ala Leu Ile Glu Val Leu Val Ala Met Leu Val Leu Thr Ile Gly Ile  
20 25 30

Leu Ala Leu Leu Ser Val Gln Leu Arg Thr Val Ala Ser Val Arg Glu  
35 40 45

Ala Glu Thr Gln Thr Ile Val Ser Gln Ile Thr Gln Asn Leu Met Glu  
50 55 60

Gly Met Leu Met Asn Pro Thr Ile Asp Ser Asp Ser Asn Lys Lys Asn  
65 70 75 80

Tyr Asn Leu Tyr Met Gly Asn His Thr Leu Ser Ala Val Asp Gly Asp  
85 90 95

Phe Ala Ile Asp Ala Met Lys Thr Lys Gly Gln Leu Ala Glu Ala Gln

100	105	110
Leu Lys Arg Phe Ser Tyr Glu	Leu Lys Asn Ala Leu Pro Asp Ala Ala	
115	120	125
Ala Ile His Tyr Ala Val Cys	Lys Asp Ser Ser Gly Asn Ala Pro Thr	
130	135	140
Leu Ser Gly Asn Ala Phe Ser	Ser Asn Cys Asp Asn Lys Ala Asn Gly	
145	150	155
Asp Thr Leu Ile Lys Val Leu	Trp Val Asn Asp Ser Ala Gly Asp Ser	
165	170	175
Asp Ile Ser Arg Thr Asn Leu	Glu Val Ser Gly Asp Asn Ile Val Tyr	
180	185	190
Thr Tyr Gln Ala Arg Val Gly	Gly Arg Glu	
195	200	

<210> 975  
 <211> 342  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 975  
 atgacgcaca cagcctctcc acgtgatgaa ttcatacgcg gcataaaaga aagttcgccc 60  
 atgctgattg ggcttttggc ttgggcattg atactcggtg tgcagggcgg gcaaaaaggt 120  
 atgggcccggc tggaaatgct gctgatgacg gggatgaact ttgccggcgg ctccgaattt 180  
 gccacgggtca acctgtgggc ggaacctctg ccgatactgc ttatcgccac cataaccttt 240  
 atgattaatt cgcggcatat cctgatgggg ggccggcgctt gccacgcaca tgaaagaaat 300  
 accgctgaaa aaagccgcgc ccgcgctgtt ttttatgtgt ga 342

<210> 976  
 <211> 113  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 976  
 Met Thr His Thr Ala Ser Pro Arg Asp Glu Phe Ile Arg Gly Ile Lys  
 1 5 10 15  
 Glu Ser Ser Pro Met Leu Ile Gly Leu Leu Pro Trp Ala Leu Ile Leu  
 20 25 30  
 Gly Met Gln Gly Gly Gln Lys Gly Met Gly Arg Leu Glu Met Leu Leu  
 35 40 45  
 Met Thr Gly Met Asn Phe Ala Gly Gly Ser Glu Phe Ala Thr Val Asn  
 50 55 60  
 Leu Trp Ala Glu Pro Leu Pro Ile Leu Leu Ile Ala Thr Ile Thr Phe  
 65 70 75 80  
 Met Ile Asn Ser Arg His Ile Leu Met Gly Gly Gly Ala Cys His Ala

85

90

95

His Glu Arg Asn Thr Ala Glu Lys Ser Arg Ala Arg Ala Val Phe Tyr  
 100 105 110

Val

<210> 977  
 <211> 336  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 977  
 atgcacacct tccccgcata acgaatttat acgcggcatc aaagaaagtt cgcctatgct 60  
 gattgggctg ctgccttggg cattaatact cggatatgcag ggcggacaaa aaggcatgag 120  
 ctggctggaa atgttggtga tgaccagtat gaacttcgcc ggcggtccg agtttgccac 180  
 ggtcaacctg tgggcsgaac ctctgccgat actgcttata gccaccgtaa cctttatgat 240  
 taattctcgg catatcctga tgggggcggc gcttgccccg cacctgaaag gaataccgct 300  
 gaaaaaagcc gtgcccgcac tgttttttat gtgtga 336

<210> 978  
 <211> 112  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 978  
 Met His Thr Pro Ser Pro His Asn Glu Phe Ile Arg Gly Ile Lys Glu  
 1 5 10 15  
 Ser Ser Pro Met Leu Ile Gly Leu Leu Pro Trp Ala Leu Ile Leu Gly  
 20 25 30  
 Met Gln Gly Gly Gln Lys Gly Met Ser Trp Leu Glu Met Leu Leu Met  
 35 40 45  
 Thr Ser Met Asn Phe Ala Gly Gly Ser Glu Phe Ala Thr Val Asn Leu  
 50 55 60  
 Trp Ala Glu Pro Leu Pro Ile Leu Leu Ile Ala Thr Val Thr Phe Met  
 65 70 75 80  
 Ile Asn Ser Arg His Ile Leu Met Gly Gly Gly Ala Cys Pro Ala Pro  
 85 90 95  
 Glu Arg Asn Thr Ala Glu Lys Ser Arg Ala Arg Thr Val Phe Tyr Val  
 100 105 110

<210> 979  
 <211> 341  
 <212> DNA

<213> *Neisseria meningitidis*

<400> 979

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atgctgacgc ggcttttggc ttgggcatta atactcggtg tgcagggtgg acaaaaaggc 120
atgagctggc tggaaatgtt gttgatgacc ggtatgaact tcgccggcgg ctccgagttt 180
gccacgggtc acctgtgggc ggaacctctg ccgatactgc ttatcgccac cgtaaccttt 240
atgattaatt ctcggcatac cctgatgggg gcggcacttg ccccgcacct gaaagaaata 300
ccgctgaaaa aagccgtgac cgactgttt tttatgtgtg a 341
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<210> 980

<211> 113

<212> PRT

<213> *Neisseria meningitidis*

<400> 980

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Met Thr His Ile Ser Ser Pro Arg Asn Glu Phe Ile Arg Gly Ile Lys
 1              5              10              15

Glu Ser Ser Pro Met Leu Ile Gly Leu Leu Pro Trp Ala Leu Ile Leu
      20              25              30

Gly Met Gln Gly Gly Gln Lys Gly Met Ser Trp Leu Glu Met Leu Leu
      35              40              45

Met Thr Gly Met Asn Phe Ala Gly Gly Ser Glu Phe Ala Thr Val Asn
      50              55              60

Leu Trp Ala Glu Pro Leu Pro Ile Leu Leu Ile Ala Thr Val Thr Phe
      65              70              75              80

Met Ile Asn Ser Arg His Ile Leu Met Gly Xaa Gly Thr Cys Pro Ala
      85              90              95

Pro Glu Arg Asn Thr Ala Glu Lys Ser Arg Ala Arg Thr Val Phe Tyr
      100              105              110
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Val

<210> 981

<211> 735

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 981

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atgcctgacc caatagggat tcttttcgct gccgtcgggg ttgatttttt tgccgttggt 60
ttgagggggc gttttcaacg aataggcgcg gttggcatgt tgataataat aatcctgatg 120
gcggaggtcg gaacaaaaac ggtcgtaacc gaggttgacg ctgaggttgt ggcggatttt 180
ggcggtatcg aaggattttt tgaatgccgc ctgcaagagc ctgtggcttt ccccgtaaata 240
cacgcggtcg gattttagt aggaagacgg cttgtcggca ctcgggcggc aatatttgtc 300
cgaaccgtcg gcggaacagt gcgtctgctg aaaatgattg tccaaaccga tgccctgccg 360
gtcgtaagag aggcgggcat aatccgcccc agtgtcttta tcggcatttg tatagacata 420
ttccaaaccg tagcggcttt tgggtgtcgt ctcgtcgtaa aacacgcccg taccgtattc 480
cgcgcccacc tccgcaccgt tttcaccgtt ggtaatcagc ccgctgtatt tgcggccgcc 540
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cgcgtatttg ccgtagcctc ttatcgatcc gtatttttta ttttcatcaa aaaccgcctt 600  
 ggtcaggaat gccggaaccg tcatatcgcg cgtgtcgaaa gtttgctgcg tgcgttcgag 660  
 tatgccgccg atgtagtgcc gtttgttttc aaaacgaaaa cccgggcgga acagccacga 720  
 ccggctttcg tatga 735

<210> 982  
 <211> 244  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 982  
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 1 5 10 15  
 Phe Ala Val Val Leu Arg Gly Arg Phe Gln Arg Ile Gly Ala Val Gly  
 20 25 30  
 Met Leu Ile Ile Ile Ile Leu Met Ala Glu Val Gly Thr Lys Thr Val  
 35 40 45  
 Val Thr Glu Val Asp Ala Gln Val Val Ala Asp Phe Gly Gly Ile Glu  
 50 55 60  
 Gly Phe Phe Glu Cys Arg Leu Gln Glu Pro Val Ala Phe Pro Val Asn  
 65 70 75 80  
 His Ala Val Gly Phe Val Val Gly Arg Arg Leu Val Gly Thr Arg Ala  
 85 90 95  
 Ala Ile Phe Val Arg Thr Val Gly Gly Thr Val Arg Leu Leu Lys Met  
 100 105 110  
 Ile Val Gln Thr Asp Ala Leu Pro Val Val Arg Glu Ala Gly Ile Ile  
 115 120 125  
 Arg Pro Ser Val Phe Ile Gly Ile Gly Ile Asp Ile Phe Gln Thr Val  
 130 135 140  
 Ala Ala Phe Gly Val Arg Leu Val Val Lys His Ala Arg Thr Val Phe  
 145 150 155 160  
 Arg Ala His Leu Arg Thr Val Phe Thr Val Gly Asn Gln Pro Ala Val  
 165 170 175  
 Phe Ala Ala Ala Arg Val Phe Ala Val Ala Ser Tyr Arg Ser Val Phe  
 180 185 190  
 Phe Ile Phe Ile Lys Asn Arg Leu Gly Gln Glu Cys Arg Asn Arg His  
 195 200 205  
 Ile Ala Arg Val Glu Ser Leu Leu Arg Ala Phe Glu Tyr Ala Ala Asp  
 210 215 220  
 Val Val Pro Phe Val Phe Lys Thr Lys Thr Arg Ala Glu Gln Pro Arg  
 225 230 235 240



Pro Ala Phe Val

<210> 983

<211> 915

<212> DNA

<213> Neisseria meningitidis

<400> 983

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gacattgtcc cgaactgccg cgtaatagct tttaccgttg atgctgcgcg gcgtgcagtc 120
cgtataagta ttgttgccca agcggcagat ttgccccgta acgacatttc ccctgcctat 180
ggtgacccaa taggggctgg tttcactgcc gttggggctg atttttttgc cgttgttttg 240
agggggcgctg ttcgacgaat aggcgcggtt ggcattgtga taataataat cctgatggcg 300
gagattagag ccaaagcggg caaacccgag attcacgctc aggttgtggc ggattttggc 360
ggtatcgaaag gattttttga atgccgcctg caagagcctg tggctttccc cgtaaatacac 420
gcgatcggtt ttgtaatagg aaaacggctt gtcggcactc gggcggaat atttgtccga 480
accgtcggca gaacagtgcg tctgctgaaa atgattatcc aaaccgatgc cctgccggtc 540
gtaagagagg cgggcataat ccgcccaagt gtctttatcg gcattggtat agacatatc 600
caaacgctag cggcttttgg tgtgcgtctc gtcgtaaaac acgcccgtag cgtattccgc 660
gccaccagc gcaccgtttt cgccgttggt aaacagtccg ccgtatttgt ggttgcccgc 720
gtatttgccg ttaccgggca aagaaccgcg ctgtttttta tttgcatcaa aaaccgcctt 780
ggtcaggaat gccggaaccg tcatatcgcg cgtgtcgaaa gtttggttgcg tgtgttcgag 840
tatgccgcg atgtagtgcc gcttattctc aaaacgaaaa cccggggcga acagccacga 900
ccgctttcg tatga 915
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<210> 984

<211> 304

<212> PRT

<213> Neisseria meningitidis

<400> 984

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Met Arg Ala Ala Val Val Val Ala Gln Ala Arg Ala Asp Ile Arg Pro
 1           5           10           15

Pro Ala Gln Thr Asp Ile Val Pro Asn Cys Arg Val Ile Ala Phe Thr
          20           25           30

Val Asp Ala Ala Arg Arg Ala Val Arg Ile Ser Ile Val Ala Gln Ala
          35           40           45

Ala Asp Leu Pro Arg Asn Asp Ile Ser Pro Ala Tyr Gly Asp Pro Ile
          50           55           60

Gly Ala Gly Phe Thr Ala Val Gly Ala Asp Phe Phe Ala Val Val Leu
          65           70           75           80

Arg Gly Arg Val Arg Arg Ile Gly Ala Val Gly Met Leu Ile Ile Ile
          85           90           95

Ile Leu Met Ala Glu Ile Arg Ala Lys Ala Val Lys Pro Glu Ile His
          100          105          110

Ala Gln Val Val Ala Asp Phe Gly Gly Ile Glu Gly Phe Phe Glu Cys
          115          120          125
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Arg Leu Gln Glu Pro Val Ala Phe Pro Val Asn His Ala Ile Gly Phe  
 130 135 140  
 Val Ile Gly Lys Arg Leu Val Gly Thr Arg Ala Ala Ile Phe Val Arg  
 145 150 155 160  
 Thr Val Gly Arg Thr Val Arg Leu Leu Lys Met Ile Ile Gln Thr Asp  
 165 170 175  
 Ala Leu Pro Val Val Arg Glu Ala Gly Ile Ile Arg Pro Ser Val Phe  
 180 185 190  
 Ile Gly Ile Gly Ile Asp Ile Phe Gln Thr Val Ala Ala Phe Gly Val  
 195 200 205  
 Arg Leu Val Val Lys His Ala Arg Thr Val Phe Arg Ala His Gln Arg  
 210 215 220  
 Thr Val Phe Ala Val Gly Lys Gln Ser Ala Val Phe Val Val Ala Arg  
 225 230 235 240  
 Val Phe Ala Val Thr Gly Gln Arg Thr Arg Leu Phe Phe Ile Cys Ile  
 245 250 255  
 Lys Asn Arg Leu Gly Gln Glu Cys Arg Asn Arg His Ile Ala Arg Val  
 260 265 270  
 Glu Ser Leu Leu Arg Val Phe Glu Tyr Ala Ala Asp Val Val Pro Leu  
 275 280 285  
 Ile Leu Lys Thr Lys Thr Arg Ala Glu Gln Pro Arg Pro Ala Phe Val  
 290 295 300

<210> 985

<211> 900

<212> DNA

<213> *Neisseria meningitidis*

<400> 985

atgcgtgctg cggtagtcgt agcgcaaccc cgcgccgaca tccgcccacc tgcccaaacg 60  
 gacattgtcc cgaactgccg cgtaataagct tttgccgttg atgctgcgcg gcgtgcagtc 120  
 cgtataagta ttgttgccca agcggcagat ttgccccgta accacatttc ccctgcctat 180  
 gctgacccaa tagggttggt ccttgccgcc gttgggggttg gcggttttag ggggcgtttt 240  
 cgacgaatag gcgcggttg catgttgata ataataatcc tgatggcgga gattagagtc 300  
 aaagcggtc aaaccgagat tcacgctcag gttgtggcgg attttggcgg tatcgaagga 360  
 tttttgaat gccgcctgca agagcctgtg gctttccccg taaatcacgc ggtcggattt 420  
 gtagtaggaa aacggcctgt cggcactcgg gcggcaatat ttgtccgaac cgtcggcaga 480  
 acagtgcgtc tgcgaaaaat gattgtccaa accgatgcc tgccggtcgt aagagaggcg 540  
 ggcataatcc acccaagtgt ctttatcggc attggtatag acatattcca aaccgtagcg 600  
 gcttttggtg tgcgtctcgt cgtaaaacac gcccgtagcg tattccgcgc ccaccagcgc 660  
 accgttttcg ccgttggtaa acagaccgcc gtatttgttg tcgcccgcgt atttgccgtt 720  
 gcctcttatt ggtccgtatt ttctattttc atcaaaaacc gccttggtca ggaatgccgg 780

aaccgtcata tcgcgctgtt cgaaagtttg ttgcgtgtgt tcgagtatgc cgccgatgta 840  
 gtgccggtttg ttttcaaaac gaaaaccgg gcggaacagc cacgatcggc tttcgtatga 900

<210> 986  
 <211> 299  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 986  
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 1 5 10 15  
 Pro Ala Gln Thr Asp Ile Val Pro Asn Cys Arg Val Ile Ala Phe Ala  
 20 25 30  
 Val Asp Ala Ala Arg Arg Ala Val Arg Ile Ser Ile Val Ala Gln Ala  
 35 40 45  
 Ala Asp Leu Pro Arg Asn His Ile Ser Pro Ala Tyr Ala Asp Pro Ile  
 50 55 60  
 Gly Leu Val Leu Ala Ala Val Gly Val Gly Gly Phe Arg Gly Arg Phe  
 65 70 75 80  
 Arg Arg Ile Gly Ala Val Gly Met Leu Ile Ile Ile Ile Leu Met Ala  
 85 90 95  
 Glu Ile Arg Val Lys Ala Val Lys Thr Glu Ile His Ala Gln Val Val  
 100 105 110  
 Ala Asp Phe Gly Gly Ile Glu Gly Phe Phe Glu Cys Arg Leu Gln Glu  
 115 120 125  
 Pro Val Ala Phe Pro Val Asn His Ala Val Gly Phe Val Val Gly Lys  
 130 135 140  
 Arg Leu Val Gly Thr Arg Ala Ala Ile Phe Val Arg Thr Val Gly Arg  
 145 150 155 160  
 Thr Val Arg Leu Leu Lys Met Ile Val Gln Thr Asp Ala Leu Pro Val  
 165 170 175  
 Val Arg Glu Ala Gly Ile Ile His Pro Ser Val Phe Ile Gly Ile Gly  
 180 185 190  
 Ile Asp Ile Phe Gln Thr Val Ala Ala Phe Gly Val Arg Leu Val Val  
 195 200 205  
 Lys His Ala Arg Thr Val Phe Arg Ala His Gln Arg Thr Val Phe Ala  
 210 215 220  
 Val Gly Lys Gln Thr Ala Val Phe Val Val Ala Arg Val Phe Ala Val  
 225 230 235 240  
 Ala Ser Tyr Arg Ser Val Phe Ser Ile Phe Ile Lys Asn Arg Leu Gly  
 245 250 255

Gln Glu Cys Arg Asn Arg His Ile Ala Arg Val Glu Ser Leu Leu Arg  
 260 265 270

Val Phe Glu Tyr Ala Ala Asp Val Val Pro Phe Val Phe Lys Thr Lys  
 275 280 285

Thr Arg Ala Glu Gln Pro Arg Ser Ala Phe Val  
 290 295

<210> 987  
 <211> 1194  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 987  
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 tggttatggg tgggtggtggc atcgatgatg tttaccgccc gatttttcagg cacttatctt 120  
 ctgatggaca atcaggggct gaatttcttt ttagtttttg cgggagtgtt gggcatgaat 180  
 acgctgatgc tggcagtatg gttggcaacg ttgttcctgc gcgtgaaagt gggacggttt 240  
 ttcagcagtc cggcgacgtg gtttcggggc aaaggccctg taaatcaggc ggtgttgctg 300  
 ctgtatgccc accagtggcg gcaaccttcg gtacgatgga aaataggcgc aacggcgcac 360  
 agcttggtgc tctgcacgct gctcggaatg ctggtgtcgg tattgctgct gcttttgggt 420  
 cggaatatata cgttcaactg ggaaagcacg ctggtgagca atgccgcttc ggtacgcgcg 480  
 gtggaaatgt tggcatggct gccgtcgaaa ctcggtttcc ctgtccccga tgcgcgggcg 540  
 gtcacgaag gtcgtctgaa cggcaatatt gccgatgcgc gggcttggtc ggggctgctg 600  
 gtccggcagta tcgtctgcta cggcatcctg ccgcgcctct tggcttggtt agtgtgtaaa 660  
 atccttttga aaacaagcga aaacggattg gatttgga aaacctatta tcaggcggtc 720  
 atccgccgct ggcagaacaa aatcacgatg gcggatacgc gtcgggaaac cgtgtccgcc 780  
 gtttcgccga aaatcgtctt gaacgatgcg ccgaaatggg cgctcatgct ggagaccgag 840  
 tggcaggacg gccaatgggt cgagggcagg ctggcgcagg aatggctgga taagggcggt 900  
 gccgccaatc gggaacagggt tgccgcgctg gagacagagc tgaagcagaa accggcgcaa 960  
 ctgcttatcg gcgtacgcgc ccaaactgtg ccggaccggg gcgtgctgcg gcagattgtg 1020  
 cggctttcgg aagcggcgca gggcggcgcg gtggtgcagc ttttggcgga acaggggctt 1080  
 tcagacgacc tttcgaaaaa gctggaacat tggcgtaacg cgctgaccga atgcggcgcg 1140  
 gcgtggcttg agcctgacag ggtggcgagc gaaggccgtt tgaaagacca ataa 1194

<210> 988  
 <211> 397  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 988  
 Met Ile Asp Arg Asp Arg Met Leu Arg Asp Thr Leu Glu Arg Val Arg  
 1 5 10 15

Ala Gly Ser Phe Trp Leu Trp Val Val Val Ala Ser Met Met Phe Thr  
 20 25 30

Ala Gly Phe Ser Gly Thr Tyr Leu Leu Met Asp Asn Gln Gly Leu Asn  
 35 40 45

Phe Phe Leu Val Leu Ala Gly Val Leu Gly Met Asn Thr Leu Met Leu  
 50 55 60

Ala	Val	Trp	Leu	Ala	Thr	Leu	Phe	Leu	Arg	Val	Lys	Val	Gly	Arg	Phe	65	70	75	80
Phe	Ser	Ser	Pro	Ala	Thr	Trp	Phe	Arg	Gly	Lys	Gly	Pro	Val	Asn	Gln	85	90	95	
Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Gln	Trp	Arg	Gln	Pro	Ser	Val	Arg	100	105	110	
Trp	Lys	Ile	Gly	Ala	Thr	Ala	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu	Leu	115	120	125	
Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr	Thr	130	135	140		
Phe	Asn	Trp	Glu	Ser	Thr	Leu	Leu	Ser	Asn	Ala	Ala	Ser	Val	Arg	Ala	145	150	155	160
Val	Glu	Met	Leu	Ala	Trp	Leu	Pro	Ser	Lys	Leu	Gly	Phe	Pro	Val	Pro	165	170	175	
Asp	Ala	Arg	Ala	Val	Ile	Glu	Gly	Arg	Leu	Asn	Gly	Asn	Ile	Ala	Asp	180	185	190	
Ala	Arg	Ala	Trp	Ser	Gly	Leu	Leu	Val	Gly	Ser	Ile	Val	Cys	Tyr	Gly	195	200	205	
Ile	Leu	Pro	Arg	Leu	Leu	Ala	Trp	Val	Val	Cys	Lys	Ile	Leu	Leu	Lys	210	215	220	
Thr	Ser	Glu	Asn	Gly	Leu	Asp	Leu	Glu	Lys	Thr	Tyr	Tyr	Gln	Ala	Val	225	230	235	240
Ile	Arg	Arg	Trp	Gln	Asn	Lys	Ile	Thr	Asp	Ala	Asp	Thr	Arg	Arg	Glu	245	250	255	
Thr	Val	Ser	Ala	Val	Ser	Pro	Lys	Ile	Val	Leu	Asn	Asp	Ala	Pro	Lys	260	265	270	
Trp	Ala	Leu	Met	Leu	Glu	Thr	Glu	Trp	Gln	Asp	Gly	Gln	Trp	Phe	Glu	275	280	285	
Gly	Arg	Leu	Ala	Gln	Glu	Trp	Leu	Asp	Lys	Gly	Val	Ala	Ala	Asn	Arg	290	295	300	
Glu	Gln	Val	Ala	Ala	Leu	Glu	Thr	Glu	Leu	Lys	Gln	Lys	Pro	Ala	Gln	305	310	315	320
Leu	Leu	Ile	Gly	Val	Arg	Ala	Gln	Thr	Val	Pro	Asp	Arg	Gly	Val	Leu	325	330	335	
Arg	Gln	Ile	Val	Arg	Leu	Ser	Glu	Ala	Ala	Gln	Gly	Gly	Ala	Val	Val	340	345	350	
Gln	Leu	Leu	Ala	Glu	Gln	Gly	Leu	Ser	Asp	Asp	Leu	Ser	Glu	Lys	Leu	355	360	365	

Glu His Trp Arg Asn Ala Leu Thr Glu Cys Gly Ala Ala Trp Leu Glu  
 370 375 380

Pro Asp Arg Val Ala Gln Glu Gly Arg Leu Lys Asp Gln  
 385 390 395

<210> 989  
 <211> 1194  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 989  
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 tggttgtggg tgggtggcggc gacgtttgca ttttttaccg gtttttcagt cacttatctt 120  
 ctaatggaca atcaggggtct gaatttcctt ttggttttgg cgggcgtggt gggcatgaat 180  
 acgctgatgc tggcagtatg gttggcaatg ttgttcctgc gtgtgaaagt ggggcgtttt 240  
 ttcagcagtc cggcgacgtg gtttcggggc aaagaccctg taaatcaggc ggtgttgccg 300  
 ctgtatgcgg acgagtggcg gcaaccttcg gtacgttggg aaataggcgc aacgtcgcac 360  
 agcctgtggc tctgcacgct gctcggaatg ctggtgtcgg tattgttgct gcttttggtg 420  
 cggcaatata cgttcaactg ggaaagcacg ctgttgagca atgccgcttc ggtacgcgcg 480  
 gtggaaatgt tggcatggct gccgtcgaaa ctcggtttcc ctgtccccga tgcgcgggcg 540  
 gtcacgaaag gccgtctgaa cggcaatatt gccgatgcgc gggcttggtc ggggctgctg 600  
 gtcggcagta tcgcctgcta cggcatcctg ccgcgcctgc tggcttggtt agtgtgtaaa 660  
 atccttttga aaacaagcga aaacggattg gatttggaaa agccctatta tcaggcggtc 720  
 atccgccgct ggcagaacaa aatcacccgat gcggatacgc gtcgggaaac cgtgtccgcc 780  
 gtttcaccga aaatcatctt gaacgatgcg ccgaaatggg cggatcatgct ggagaccgag 840  
 tggcaggacg gcgaatgggt cgagggcagg ctggcgacag aatggctgga taaggcgctt 900  
 gccaccaatc gggaacaggt tgccgcgctg gagacagagc tgaagcagaa accggcgcaa 960  
 ctgcttatcg gcgtgcgcgc ccaaactgtg ccggaccgcg gcgtgttgcg gcagattgtc 1020  
 cgactctcgg aagcggcgca gggcggcgcg gtggtgcagc ttttggcgga acaggggctt 1080  
 tcagacgacc tttcggaaaa gctggaacat tggcgtaacg cgctggccga atgcggcgcg 1140  
 gcgtggcttg agcctgacag ggcggcgcac gaaggcgctt tgaaagacca ataa 1194

<210> 990  
 <211> 397  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 990  
 Met Ile Asp Arg Asn Arg Met Leu Arg Glu Thr Leu Glu Arg Val Arg  
 1 5 10 15  
 Ala Gly Ser Phe Trp Leu Trp Val Val Ala Ala Thr Phe Ala Phe Phe  
 20 25 30  
 Thr Gly Phe Ser Val Thr Tyr Leu Leu Met Asp Asn Gln Gly Leu Asn  
 35 40 45  
 Phe Phe Leu Val Leu Ala Gly Val Leu Gly Met Asn Thr Leu Met Leu  
 50 55 60  
 Ala Val Trp Leu Ala Met Leu Phe Leu Arg Val Lys Val Gly Arg Phe  
 65 70 75 80

Phe	Ser	Ser	Pro	Ala	Thr	Trp	Phe	Arg	Gly	Lys	Asp	Pro	Val	Asn	Gln		
				85					90					95			
Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Glu	Trp	Arg	Gln	Pro	Ser	Val	Arg		
			100					105					110				
Trp	Lys	Ile	Gly	Ala	Thr	Ser	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu	Leu		
		115					120					125					
Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr	Thr			
	130					135				140							
Phe	Asn	Trp	Glu	Ser	Thr	Leu	Leu	Ser	Asn	Ala	Ala	Ser	Val	Arg	Ala		
145					150				155						160		
Val	Glu	Met	Leu	Ala	Trp	Leu	Pro	Ser	Lys	Leu	Gly	Phe	Pro	Val	Pro		
			165						170					175			
Asp	Ala	Arg	Ala	Val	Ile	Glu	Gly	Arg	Leu	Asn	Gly	Asn	Ile	Ala	Asp		
			180					185					190				
Ala	Arg	Ala	Trp	Ser	Gly	Leu	Leu	Val	Gly	Ser	Ile	Ala	Cys	Tyr	Gly		
		195				200						205					
Ile	Leu	Pro	Arg	Leu	Leu	Ala	Trp	Val	Val	Cys	Lys	Ile	Leu	Leu	Lys		
	210					215					220						
Thr	Ser	Glu	Asn	Gly	Leu	Asp	Leu	Glu	Lys	Pro	Tyr	Tyr	Gln	Ala	Val		
225					230					235					240		
Ile	Arg	Arg	Trp	Gln	Asn	Lys	Ile	Thr	Asp	Ala	Asp	Thr	Arg	Arg	Glu		
			245						250					255			
Thr	Val	Ser	Ala	Val	Ser	Pro	Lys	Ile	Ile	Leu	Asn	Asp	Ala	Pro	Lys		
			260					265					270				
Trp	Ala	Val	Met	Leu	Glu	Thr	Glu	Trp	Gln	Asp	Gly	Glu	Trp	Phe	Glu		
	275						280					285					
Gly	Arg	Leu	Ala	Gln	Glu	Trp	Leu	Asp	Lys	Gly	Val	Ala	Thr	Asn	Arg		
	290					295					300						
Glu	Gln	Val	Ala	Ala	Leu	Glu	Thr	Glu	Leu	Lys	Gln	Lys	Pro	Ala	Gln		
305					310					315					320		
Leu	Leu	Ile	Gly	Val	Arg	Ala	Gln	Thr	Val	Pro	Asp	Arg	Gly	Val	Leu		
			325						330					335			
Arg	Gln	Ile	Val	Arg	Leu	Ser	Glu	Ala	Ala	Gln	Gly	Gly	Ala	Val	Val		
		340						345					350				
Gln	Leu	Leu	Ala	Glu	Gln	Gly	Leu	Ser	Asp	Asp	Leu	Ser	Glu	Lys	Leu		
	355					360						365					
Glu	His	Trp	Arg	Asn	Ala	Leu	Ala	Glu	Cys	Gly	Ala	Ala	Trp	Leu	Glu		
	370					375					380						

Pro Asp Arg Ala Ala Gln Glu Gly Arg Leu Lys Asp Gln  
 385 390 395

<210> 991  
 <211> 1203  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 991  
 atgatcgaca ggaaccgtat gctgcgggag acgttggaaac gtgtgctgctc ggggtcgttc 60  
 tggttgtggg tggcggcggc gacgttttgcg ttttttaccg gtttttcagt tacttatctt 120  
 ctaatggaca atcaggggtct gaatttcttt ttggttttgg cgggcgtgtt gggcatgaat 180  
 acgctgatgc tggcagtatg gttggcaatg ttgttcctgc gcgtgaaagt ggggcgtttt 240  
 ttcagcagtc cggcgacgtg gtttcggggc aaagaccctg tcaatcaggc ggtggtgctg 300  
 ctgtatgcgg acgagtggcg gcaaccttcg gtacgttggg aaataggcgc aacgtcgcac 360  
 agcctgtggc tctgcacgct gctcggaatg ctggtgtcgg tattgttget gcttttgggtg 420  
 cggcaatata cgttcaactg ggaaagcacg ctggtgggcg attcgtcttc ggtacggctg 480  
 gtggaaatgt tggcatggct gcctgcgaaa ctgggttttc ccgtgcctga tgcgcgggcg 540  
 gtcatcgaaag gtcgtctgaa cggcaatatt gccgatgcgc gggcttggtc ggggctgctg 600  
 gtcggcagta tcgcctgcta cggcatcctg ccgcgcctct tggcttgggc ggtatgcaaa 660  
 atccttttga aaacaagcga aaacggcttg gat ttggaaa agccctatta tcaggcgggtc 720  
 atccgccgct ggcagaacaa aatcaccgat gcggatacgc gtcgggaaac cgtgtccgcc 780  
 gtttcgccga aaatcgtctt gaacgatgcg ccgaaatggg cggtcatgct ggagaccgaa 840  
 tggcaggacg gcgaatgggt cgagggcagg ctggcgagg aatggctgga taagggcggt 900  
 gccgccaatc gggaacagggt tgccgcgctg gagacagagc tgaagcagaa accggcgcaa 960  
 ctgcttatcg gcgtgcgcgc ccaaactgtg cccgaccgcg gcgtgttgcg gcagatcgct 1020  
 cgacttttcg aagcggcgca gggcggcgcg gtggtgcagc ttttggcgga acaggggctt 1080  
 tcagacgacc tttcggaaaa gctggaacat tggcgtaacg cgctgaccga atgcggcgcg 1140  
 gcgtggctgg aacccgacag agcggcgcgag gaaggccgtc tgaaaaccaa cgaccgcact 1200  
 tga 1203

<210> 992  
 <211> 400  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 992  
 Met Ile Asp Arg Asn Arg Met Leu Arg Glu Thr Leu Glu Arg Val Arg  
 1 5 10 15  
 Ala Gly Ser Phe Trp Leu Trp Val Ala Ala Ala Thr Phe Ala Phe Phe  
 20 25 30  
 Thr Gly Phe Ser Val Thr Tyr Leu Leu Met Asp Asn Gln Gly Leu Asn  
 35 40 45  
 Phe Phe Leu Val Leu Ala Gly Val Leu Gly Met Asn Thr Leu Met Leu  
 50 55 60  
 Ala Val Trp Leu Ala Met Leu Phe Leu Arg Val Lys Val Gly Arg Phe  
 65 70 75 80  
 Phe Ser Ser Pro Ala Thr Trp Phe Arg Gly Lys Asp Pro Val Asn Gln  
 85 90 95



Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Glu	Trp	Arg	Gln	Pro	Ser	Val	Arg		
			100					105					110				
Trp	Lys	Ile	Gly	Ala	Thr	Ser	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu	Leu		
		115					120					125					
Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr	Thr		
	130					135					140						
Phe	Asn	Trp	Glu	Ser	Thr	Leu	Leu	Gly	Asp	Ser	Ser	Ser	Val	Arg	Leu		
145					150					155					160		
Val	Glu	Met	Leu	Ala	Trp	Leu	Pro	Ala	Lys	Leu	Gly	Phe	Pro	Val	Pro		
				165					170					175			
Asp	Ala	Arg	Ala	Val	Ile	Glu	Gly	Arg	Leu	Asn	Gly	Asn	Ile	Ala	Asp		
			180					185					190				
Ala	Arg	Ala	Trp	Ser	Gly	Leu	Leu	Val	Gly	Ser	Ile	Ala	Cys	Tyr	Gly		
		195					200					205					
Ile	Leu	Pro	Arg	Leu	Leu	Ala	Trp	Ala	Val	Cys	Lys	Ile	Leu	Leu	Lys		
	210					215					220						
Thr	Ser	Glu	Asn	Gly	Leu	Asp	Leu	Glu	Lys	Pro	Tyr	Tyr	Gln	Ala	Val		
225					230					235					240		
Ile	Arg	Arg	Trp	Gln	Asn	Lys	Ile	Thr	Asp	Ala	Asp	Thr	Arg	Arg	Glu		
				245					250					255			
Thr	Val	Ser	Ala	Val	Ser	Pro	Lys	Ile	Val	Leu	Asn	Asp	Ala	Pro	Lys		
			260					265					270				
Trp	Ala	Val	Met	Leu	Glu	Thr	Glu	Trp	Gln	Asp	Gly	Glu	Trp	Phe	Glu		
		275					280					285					
Gly	Arg	Leu	Ala	Gln	Glu	Trp	Leu	Asp	Lys	Gly	Val	Ala	Ala	Asn	Arg		
	290					295					300						
Glu	Gln	Val	Ala	Ala	Leu	Glu	Thr	Glu	Leu	Lys	Gln	Lys	Pro	Ala	Gln		
305					310					315					320		
Leu	Leu	Ile	Gly	Val	Arg	Ala	Gln	Thr	Val	Pro	Asp	Arg	Gly	Val	Leu		
				325					330					335			
Arg	Gln	Ile	Val	Arg	Leu	Ser	Glu	Ala	Ala	Gln	Gly	Gly	Ala	Val	Val		
			340					345					350				
Gln	Leu	Leu	Ala	Glu	Gln	Gly	Leu	Ser	Asp	Asp	Leu	Ser	Glu	Lys	Leu		
		355					360					365					
Glu	His	Trp	Arg	Asn	Ala	Leu	Thr	Glu	Cys	Gly	Ala	Ala	Trp	Leu	Glu		
	370					375					380						
Pro	Asp	Arg	Ala	Ala	Gln	Glu	Gly	Arg	Leu	Lys	Thr	Asn	Asp	Arg	Thr		
385					390					395					400		

<210> 993  
 <211> 627  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 993  
 atgtatgcag gcgaacgctt caatacttac agccatttga gcggtttgat tctggcggcg 60  
 gcaggtttga tgctgatgct gctgaaaacc ataggacacg gggacggata ccgtatcttc 120  
 agcgtatcgg tttaacggcat cagccttctt ctgctctatt tgagttcctc gctgtaccac 180  
 ggaattgcag ccggaaaact gaaaagcatt ttgaaa'aaaa ccgaccactg catgatttat 240  
 gtgctgattg ccggaagcta cacaccgttt gcactggttt ctttgagaaa cgggccgggc 300  
 tggacggtat tttaactgtc ctggctgctg gcggctgcag gaatcgcaca agaactcacc 360  
 atcggacgga aaagcgaaaa acgtctgctg tctattgcga tttatatcgt aatgggctgg 420  
 atgggtcttg cggtaatgaa atccctgaca gctcactcc cgcgggcagg actggcttgg 480  
 ctggcggcag gcggtatgct gtacagcgtc ggcatttact ggtttgtaaa cgatgaaaaa 540  
 atccgacacg ggcacggaat ctggcatctg ttctgtattg gcggcagcat aaccaattt 600  
 gtcagcgtgt acggttatgt aatctga 627

<210> 994  
 <211> 208  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 994  
 Met Tyr Ala Gly Glu Arg Phe Asn Thr Tyr Ser His Leu Ser Gly Leu  
     1                    5                    10                    15  
 Ile Leu Ala Ala Ala Gly Leu Met Leu Met Leu Leu Lys Thr Ile Gly  
                     20                    25                    30  
 His Gly Asp Gly Tyr Arg Ile Phe Ser Val Ser Val Tyr Gly Ile Ser  
                     35                    40                    45  
 Leu Leu Leu Leu Tyr Leu Ser Ser Ser Leu Tyr His Gly Ile Ala Ala  
                     50                    55                    60  
 Gly Lys Leu Lys Ser Ile Leu Lys Lys Thr Asp His Cys Met Ile Tyr  
                     65                    70                    75                    80  
 Val Leu Ile Ala Gly Ser Tyr Thr Pro Phe Ala Leu Val Ser Leu Arg  
                     85                    90                    95  
 Asn Gly Pro Gly Trp Thr Val Phe Ser Leu Ser Trp Leu Leu Ala Ala  
                     100                    105                    110  
 Ala Gly Ile Ala Gln Glu Leu Thr Ile Gly Arg Lys Ser Glu Lys Arg  
                     115                    120                    125  
 Leu Leu Ser Ile Ala Ile Tyr Ile Val Met Gly Trp Met Val Leu Ala  
                     130                    135                    140

Val Met Lys Ser Leu Thr Ala Ser Leu Pro Pro Ala Gly Leu Ala Trp  
 145 150 155 160

Leu Ala Ala Gly Gly Met Leu Tyr Ser Val Gly Ile Tyr Trp Phe Val  
 165 170 175

Asn Asp Glu Lys Ile Arg His Gly His Gly Ile Trp His Leu Phe Val  
 180 185 190

Leu Gly Gly Ser Ile Thr Gln Phe Val Ser Val Tyr Gly Tyr Val Ile  
 195 200 205

<210> 995  
 <211> 504  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 995  
 gtatcggttt acggcatcag ccttcttctg ctctatttga gttcctggct gtaccacgga 60  
 attgcagccg gaaaactgaa aagcattttg aaaaaaacgg accactgcat gatttatgtg 120  
 ctgattgccg gaagctacac accgtttgca ctggtttctt tgagaaacgg gccgggctgg 180  
 acggtatttt cactgtcctg gctgctggcg gctgcaggaa tcgcacaaga actcaccatc 240

ggacggaaaa gcgaaaaacg tctgctgtct attgtgattt atgtcgtcat gggttggatg 300  
 gtcttgccgg taatgaaatc cctgacagcc tcaactccgt cggcaggact ggcttggctg 360  
 gcggcaggcg gtatgctgta cagtgtcggc atttactggg ttgtaaacga tgaaaaaatc 420  
 cgacacgggc acggaatctg gcatctgttc gtattgggcy gcagcatcac ccaatttgtc 480  
 agcgtgtacg gttacgtaat ctga 504

<210> 996  
 <211> 167  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 996  
 Val Ser Val Tyr Gly Ile Ser Leu Leu Leu Tyr Leu Ser Ser Trp  
 1 5 10 15

Leu Tyr His Gly Ile Ala Ala Gly Lys Leu Lys Ser Ile Leu Lys Lys  
 20 25 30

Thr Asp His Cys Met Ile Tyr Val Leu Ile Ala Gly Ser Tyr Thr Pro  
 35 40 45

Phe Ala Leu Val Ser Leu Arg Asn Gly Pro Gly Trp Thr Val Phe Ser  
 50 55 60

Leu Ser Trp Leu Leu Ala Ala Ala Gly Ile Ala Gln Glu Leu Thr Ile  
 65 70 75 80

Gly Arg Lys Ser Glu Lys Arg Leu Leu Ser Ile Val Ile Tyr Val Val

85

90

95

Met Gly Trp Met Val Leu Ala Val Met Lys Ser Leu Thr Ala Ser Leu  
 100 105 110

Pro Ser Ala Gly Leu Ala Trp Leu Ala Ala Gly Gly Met Leu Tyr Ser  
 115 120 125

Val Gly Ile Tyr Trp Phe Val Asn Asp Glu Lys Ile Arg His Gly His  
 130 135 140

Gly Ile Trp His Leu Phe Val Leu Gly Gly Ser Ile Thr Gln Phe Val  
 145 150 155 160

Ser Val Tyr Gly Tyr Val Ile  
 165

&lt;210&gt; 997

&lt;211&gt; 627

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 997

atgtatacag gcgaacgctt caatacttac agccatttga gcggtttgat tctggcggcg 60  
 gcaggttttg cgctgatgct gctgaaaacc ataggacacg gggacggcta ccgtatcttc 120  
 agcgtatcgg ttacggcat cagccttctt ctgctctatt tgagttcctc gctgtaccac 180  
 ggaattgcag ccggaaaact gaaaagcatt ttgaaaaaaa ccgaccactg catgatttat 240  
 gtgctgattg ccggaagcta cacaccgttt gcactggttt ctttgagaaa cgggccgggc 300  
 tggacgggat ttctactgtc ctggctgctg gcggtgcag gaatgcaca agaactcacc 360  
 attggacgga aaagcgaaaa acgactgctg tctattgcga ttatatcgt aatgggctgg 420  
 atggtcttgg cggtaatgaa atccctgaca gcctcactcc cgccggcagg actggcttgg 480  
 ctggcggcag gcggtatgct gtacagcgtc ggcatttact gggttgtaaa cgatgaaaaa 540  
 atccgacacg ggcacggaat ctggcatctg ttcgtattgg gcggcagcat caccaattt 600  
 gtcagcgtgt acggttacgt aatctga 627

&lt;210&gt; 998

&lt;211&gt; 208

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 998

Met Tyr Thr Gly Glu Arg Phe Asn Thr Tyr Ser His Leu Ser Gly Leu  
 1 5 10 15

Ile Leu Ala Ala Ala Gly Leu Ala Leu Met Leu Leu Lys Thr Ile Gly  
 20 25 30

His Gly Asp Gly Tyr Arg Ile Phe Ser Val Ser Val Tyr Gly Ile Ser  
 35 40 45

Leu Leu Leu Leu Tyr Leu Ser Ser Ser Leu Tyr His Gly Ile Ala Ala  
 50 55 60

Gly Lys Leu Lys Ser Ile Leu Lys Lys Thr Asp His Cys Met Ile Tyr

65		70		75		80									
Val	Leu	Ile	Ala	Gly	Ser	Tyr	Thr	Pro	Phe	Ala	Leu	Val	Ser	Leu	Arg
				85					90					95	
Asn	Gly	Pro	Gly	Trp	Thr	Val	Phe	Ser	Leu	Ser	Trp	Leu	Leu	Ala	Ala
			100					105					110		
Ala	Gly	Ile	Ala	Gln	Glu	Leu	Thr	Ile	Gly	Arg	Lys	Ser	Glu	Lys	Arg
		115					120					125			
Leu	Leu	Ser	Ile	Ala	Ile	Tyr	Ile	Val	Met	Gly	Trp	Met	Val	Leu	Ala
	130					135					140				
Val	Met	Lys	Ser	Leu	Thr	Ala	Ser	Leu	Pro	Pro	Ala	Gly	Leu	Ala	Trp
145					150					155					160
Leu	Ala	Ala	Gly	Gly	Met	Leu	Tyr	Ser	Val	Gly	Ile	Tyr	Trp	Phe	Val
			165						170					175	
Asn	Asp	Glu	Lys	Ile	Arg	His	Gly	His	Gly	Ile	Trp	His	Leu	Phe	Val
		180						185					190		
Leu	Gly	Gly	Ser	Ile	Thr	Gln	Phe	Val	Ser	Val	Tyr	Gly	Tyr	Val	Ile
	195						200					205			

<210> 999  
 <211> 567  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 999  
 atggttgac aggaagcctt gcggggtcag ttcgtcgccg tggctcgctgc cgcgttgcg 60  
 tacgctgtca aaacctgcgc cgatttcac gccttgacg gcgttgatgc ccatcatcgc 120  
 gtaggcgatt tcggcatcga ggcggtcgaa aacgggttcg cccaaaccga cggggacgtt 180  
 ggcggcttcg atatgcagtt tcgcgccgac ggaatccaag gatttgcgca caccgtccat 240  
 atagtgttcc agttcggcga tttggctttg gttggcggca aaaaaaggat tttgggaaat 300  
 gtgttcgctg ccttcaaacc ggattttttt ttcgccgact tgggtaacgt aggcggtgat 360  
 ttccgtgccg aatttttctt tcagccattt tttggcaacg gctccggcgg caacgcgggc 420  
 tgcggtttcg cgggcggaac tcctgccgcc gcccggtag tcgcgcgtac cgtatttggtg 480  
 ccaataggtg tagtcggcgt gtccggggcg gaaggcgggtg gcgatgtcgc cgtagtcttc 540  
 gctgcgctgg tcggtgttgc ggattag 567

<210> 1000  
 <211> 188  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1000  
 Met Val Gly Gln Glu Ala Leu Arg Gly Gln Phe Val Ala Val Phe Ala  
 1 5 10 15

Ala Ala Leu Arg Tyr Ala Val Lys Thr Cys Ala Asp Phe His Ala Phe  
20 25 30

Asp Gly Val Asp Ala His His Arg Val Gly Asp Phe Gly Ile Glu Ala  
35 40 45

Val Glu Asn Gly Phe Ala Gln Thr Asp Gly Asp Val Gly Gly Phe Asp  
50 55 60

Met Gln Phe Arg Ala Asp Gly Ile Gln Gly Phe Ala His Thr Val His  
65 70 75 80

Ile Val Phe Gln Phe Gly Asp Leu Ala Leu Val Gly Gly Lys Lys Arg  
85 90 95

Ile Leu Gly Asn Val Phe Ala Ala Phe Lys Pro Asp Phe Phe Phe Ala  
100 105 110

Asp Leu Gly Asn Val Gly Gly Asp Phe Arg Ala Glu Phe Phe Phe Gln  
115 120 125

Pro Phe Phe Gly Asn Gly Ser Gly Gly Asn Ala Gly Cys Gly Phe Ala  
130 135 140

Gly Gly Thr Pro Ala Ala Ala Pro Val Val Ala Arg Thr Val Phe Val  
145 150 155 160

Pro Ile Gly Ile Val Gly Val Ser Gly Ala Glu Gly Gly Gly Asp Val  
165 170 175

Ala Val Val Phe Ala Ala Leu Val Gly Val Ala Asp  
180 185

<210> 1001

<211> 567

<212> DNA

<213> *Neisseria meningitidis*

<400> 1001

gtggttgac aggaagcctt gcggggtcag ttcgtcgccg tggtcgctgc cgcgttgctg 60  
tacgctgtca aaacctgcgc cgatttccac gcctttgacg gcgttgatgc ccatcatcgc 120  
gtaggcgatt tcggcatcga ggccgtcaaa aacaggttcg cccaagccga cagggacatt 180  
ggctgcttcg atatgcagct tcgcgccgac ggaatccaag gatttgcgca cgctgtccat 240  
atagttttcc agctcggcaa tttggctatg gttggcggca aaaaaaggat tttgggaaat 300  
gtgttcgcag ccttcaaacc ggatttcttt ttcgccgact tgggtaacgt aggcggtgat 360  
ttccgtgccg aatttttctt tcaaccattt tttggcaacg gctccggcag caacgcgggc 420  
ggcggtttca cgggcggagc tcctgcccgc gccgcggtag tcgcgcgtgc cgtatttgtg 480  
ccaataghta tagtcggcgt ggccggggcg gaagctggtg gcgatgttgc cgtagtcctt 540  
gctgcgctgg tcggtattgc ggattaa 567

<210> 1002

<211> 188

<212> PRT

<213> *Neisseria meningitidis*

<400> 1002

Val Val Gly Gln Glu Ala Leu Arg Gly Gln Phe Val Ala Val Phe Ala  
1 5 10 15

Ala Ala Leu Arg Tyr Ala Val Lys Thr Cys Ala Asp Phe His Ala Phe  
20 25 30

Asp Gly Val Asp Ala His His Arg Val Gly Asp Phe Gly Ile Glu Ala  
35 40 45

Val Lys Asn Arg Phe Ala Gln Ala Asp Arg Asp Ile Gly Cys Phe Asp  
50 55 60

Met Gln Leu Arg Ala Asp Gly Ile Gln Gly Phe Ala His Ala Val His  
65 70 75 80

Ile Val Phe Gln Leu Gly Asn Leu Ala Met Val Gly Gly Lys Lys Arg  
85 90 95

Ile Leu Gly Asn Val Phe Ala Ala Phe Lys Pro Asp Phe Phe Phe Ala  
100 105 110

Asp Leu Gly Asn Val Gly Gly Asp Phe Arg Ala Glu Phe Phe Phe Gln  
115 120 125

Pro Phe Phe Gly Asn Gly Ser Gly Ser Asn Ala Gly Gly Gly Phe Thr  
130 135 140

Gly Gly Ala Pro Ala Ala Ala Val Val Ala Arg Ala Val Phe Val  
145 150 155 160

Pro Ile Gly Ile Val Gly Val Ala Gly Ala Glu Ala Gly Gly Asp Val  
165 170 175

Ala Val Val Phe Ala Ala Leu Val Gly Ile Ala Asp  
180 185

<210> 1003

<211> 567

<212> DNA

<213> Neisseria meningitidis

<400> 1003

gtggttggac aggaagcctt gcggggtgag ttcgtcgccg tgttcgctgc cgcgttgcgt 60  
tacgctgtca aaacctgcgc cgatttccac gcctttgacg gcgttgatgc ccatcatggc 120  
gtaggcgatt tcggcatcga ggcggtcgaa tacgggttcg cccaagccga cggggacgtt 180  
ggcggttca atatgcagct tcgcgccgac ggaatccaag gatttgcgca cgctgtccat 240  
atagttttcc agctcgcaa tttggctatg gttggcggca aaaaaaggat tttgggaaat 300  
gtgttcgcag ccttcaaacc ggatttcttt ttcgccgact tgggtaacgt aggcggtgat 360  
ttccgtgccg aatttttctt tcaaccattt tttggcaacg gctccggcgg caacgcgggc 420  
ggcggtttcg cgggcggaac tcctgccgcc gccccggtag tcgcgcgtgc cgtatttggtg 480  
ccaataggta tagtcggcgt ggccggggcg gaagctggtg gcgatgttgc cgtagtcttt 540  
gctgcgctgg tcggtattgc ggattaa 567

<210> 1004  
<211> 188  
<212> PRT  
<213> Neisseria meningitidis

<400> 1004

Val Val Gly Gln Glu Ala Leu Arg Gly Glu Phe Val Ala Val Phe Ala  
1 5 10 15

Ala Ala Leu Arg Tyr Ala Val Lys Thr Cys Ala Asp Phe His Ala Phe  
20 25 30

Asp Gly Val Asp Ala His His Gly Val Gly Asp Phe Gly Ile Glu Ala  
35 40 45

Val Glu Tyr Gly Phe Ala Gln Ala Asp Gly Asp Val Gly Gly Phe Asn  
50 55 60

Met Gln Leu Arg Ala Asp Gly Ile Gln Gly Phe Ala His Ala Val His  
65 70 75 80

Ile Val Phe Gln Leu Gly Asn Leu Ala Met Val Gly Gly Lys Lys Arg  
85 90 95

Ile Leu Gly Asn Val Phe Ala Ala Phe Lys Pro Asp Phe Phe Phe Ala  
100 105 110

Asp Leu Gly Asn Val Gly Gly Asp Phe Arg Ala Glu Phe Phe Phe Gln  
115 120 125

Pro Phe Phe Gly Asn Gly Ser Gly Gly Asn Ala Gly Gly Gly Phe Ala  
130 135 140

Gly Gly Thr Pro Ala Ala Ala Pro Val Val Ala Arg Ala Val Phe Val  
145 150 155 160

Pro Ile Gly Ile Val Gly Val Ala Gly Ala Glu Ala Gly Gly Asp Val  
165 170 175

Ala Val Val Phe Ala Ala Leu Val Gly Ile Ala Asp  
180 185

<210> 1005  
<211> 720  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 1005

atgctcgcgg tacgcaatcg gggttggcac ggcgcagtcg tccatttccg cagctgcggc 60  
ggcgtagcga acaccgcccc ggtgttctac cacttgggtg ataccgccga aatcgccctt 120  
gctttggaca cgctcaccgc gcgttaccgt gaaatatacg ccgtcggcgt atcgctgggc 180  
ggcaacgcgc cggcaaaata ttggggcgaa cagggcaaaa aggcatcgcc gcacgcctcg 240  
gccgccgtat ccgcccccggt tgatgcagag gcggcaggca gccgcttcga cagcggcatc 300  
acgcggctgc tctacacgcg ctacttcctc cgcacactga tacccaaagc acgttcgctc 360  
caagggtttc agacggcatt tgccgcaggg tgcaaaacac tgggcgagtt tgacgaccgt 420  
ttcaccgcac cgctgcacgg ctttgccgac cggcacgact actaccgcc aacttcctgc 480



aaaccgctgc tcaaacacgt tgccaaaccg ctgctcctgc tcaatgccgc caacgacccc 540  
 ttcctgccgc ccgaagccct gccccgtgca gacgaagcgt ccgaagccgt taccctgttc 600  
 caacctgcac acggcgggca cgccggcttt gtcagcagca ccggcggcag gctgcacctg 660  
 caatggctgc cgcagaccgt cctgtcctat tttagacagt tccgcacaaa caggcgtaa 720

<210> 1006

<211> 239

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1006

Met Leu Ala Val Arg Asn Arg Gly Trp His Gly Ala Val Val His Phe  
 1 5 10 15

Arg Ser Cys Gly Gly Val Ala Asn Thr Ala Pro Val Phe Tyr His Leu  
 20 25 30

Gly Asp Thr Ala Glu Ile Ala Phe Ala Leu Asp Thr Leu Thr Ala Arg  
 35 40 45

Tyr Arg Glu Ile Tyr Ala Val Gly Val Ser Leu Gly Gly Asn Ala Pro  
 50 55 60

Ala Lys Tyr Leu Gly Glu Gln Gly Lys Lys Ala Leu Pro His Ala Ser  
 65 70 75 80

Ala Ala Val Ser Ala Pro Val Asp Ala Glu Ala Ala Gly Ser Arg Phe  
 85 90 95

Asp Ser Gly Ile Thr Arg Leu Leu Tyr Thr Arg Tyr Phe Leu Arg Thr  
 100 105 110

Leu Ile Pro Lys Ala Arg Ser Leu Gln Gly Phe Gln Thr Ala Phe Ala  
 115 120 125

Ala Gly Cys Lys Thr Leu Gly Glu Phe Asp Asp Arg Phe Thr Ala Pro  
 130 135 140

Leu His Gly Phe Ala Asp Arg His Asp Tyr Tyr Arg Gln Thr Ser Cys  
 145 150 155 160

Lys Pro Leu Leu Lys His Val Ala Lys Pro Leu Leu Leu Leu Asn Ala  
 165 170 175

Ala Asn Asp Pro Phe Leu Pro Pro Glu Ala Leu Pro Arg Ala Asp Glu  
 180 185 190

Ala Ser Glu Ala Val Thr Leu Phe Gln Pro Ala His Gly Gly His Ala  
 195 200 205

Gly Phe Val Ser Ser Thr Gly Gly Arg Leu His Leu Gln Trp Leu Pro  
 210 215 220

Gln Thr Val Leu Ser Tyr Phe Asp Ser Phe Arg Thr Asn Arg Arg  
 225 230 235

<210> 1007  
 <211> 719  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1007  
 atgcttgccg tacgcgatcg gggttggcac ggcgtagtcg tccatttccg cagctgcggc 60  
 ggcattgcc aacacgctcc ggtgttctac cacttggcga taccgccgaa atcgcttta 120  
 ctttgacac gttcgccgcg cgttaccgtg aaatatacgc cgtcggcgta tcgctgggcg 180  
 gcaacgcgct ggcaaaatat ttgggcgaac agggcaaaaa ggcattgccg caagccgctg 240  
 ccgtcatctc cgcgcccgtc gatgcagagg cggcaggcag acgcttcgac agcggcatca 300  
 cgcggtgct ctacacgcgc tacttctctc gcaccctgat acccaaagca aaatcgctcc 360  
 aaggttttca gacggcattt gccgcagggt gcaaaacact gggcgagttt gacgaccgct 420  
 tcaccgcacc gctgcacggc ttgcccagcc ggacagacta ctaccgcaa acttcctgca 480  
 aaccgctgct caaacacgtt gccaaacgc tgctcctgct caatgccgtc aacgaccct 540  
 tcctgcgcgc cgaagccctg cccgcgcgag acgaagtatc cgaagccgtt accctgttcc 600  
 agccggcata tgggtggtcat gtcggttttg tcagcagcac cggcggcagg ctgcacctgc 660  
 aatggctgcc gcagaccgtc ctgtcctatt tcgacagctt ccgcacaaac aggcgttaa 719

<210> 1008  
 <211> 239  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1008  
 Met Leu Ala Val Arg Asp Arg Gly Trp His Gly Val Val Val His Phe  
 1 5 10 15  
 Arg Ser Cys Gly Gly Ile Ala Asn Thr Ala Pro Val Phe Tyr Xaa Leu  
 20 25 30  
 Gly Asp Thr Ala Glu Ile Ala Phe Thr Leu Asp Thr Phe Ala Ala Arg  
 35 40 45  
 Tyr Arg Glu Ile Tyr Ala Val Gly Val Ser Leu Gly Gly Asn Ala Leu  
 50 55 60  
 Ala Lys Tyr Leu Gly Glu Gln Gly Lys Lys Ala Leu Pro Gln Ala Ala  
 65 70 75 80  
 Ala Val Ile Ser Ala Pro Val Asp Ala Glu Ala Ala Gly Arg Arg Phe  
 85 90 95  
 Asp Ser Gly Ile Thr Arg Leu Leu Tyr Thr Arg Tyr Phe Leu Arg Thr  
 100 105 110  
 Leu Ile Pro Lys Ala Lys Ser Leu Gln Gly Phe Gln Thr Ala Phe Ala  
 115 120 125  
 Ala Gly Cys Lys Thr Leu Gly Glu Phe Asp Asp Arg Phe Thr Ala Pro  
 130 135 140  
 Leu His Gly Phe Ala Asp Arg His Asp Tyr Tyr Arg Gln Thr Ser Cys  
 145 150 155 160

Lys Pro Leu Leu Lys His Val Ala Lys Pro Leu Leu Leu Leu Asn Ala  
 165 170 175  
 Val Asn Asp Pro Phe Leu Pro Pro Glu Ala Leu Pro Arg Ala Asp Glu  
 180 185 190  
 Val Ser Glu Ala Val Thr Leu Phe Gln Pro Ala Tyr Gly Gly His Val  
 195 200 205  
 Gly Phe Val Ser Ser Thr Gly Gly Arg Leu His Leu Gln Trp Leu Pro  
 210 215 220  
 Gln Thr Val Leu Ser Tyr Phe Asp Ser Phe Arg Thr Asn Arg Arg  
 225 230 235

<210> 1009  
 <211> 720  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1009  
 atgctcgcgg tacgcgatcg gggttgaac ggcgtagtcg tccatttccg cagctgcggc 60  
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 actttggaca cgctcgccgc gcgttacgt gaaatatacg ccgtcggcgt atcgctgggc 180  
 ggcaacgcgc tggcaaaata tttgggcgaa cagggcgaaa acgcgctgcc gcaagccgcc 240  
 gcgctcatct ccgcaccgt cgatgcagag gcggcaggca accgcttcga cagcggcatc 300  
 acacggctgc tctacacgcg ctacttcctc cgcacactga tacccaaagc acggtcgctc 360  
 caaggttttc agacggcatt tgccgcaggg tgcaaaacac tgggcgagtt tgacgaccgt 420  
 ttcaccgcac cgctgcacgg ctttgccgat cggcacgact actaccgcca aacttcctgc 480  
 aaaccgctgc tcaaacacgt tgccaaaccg ctgctcctgc tcaatgccgt caacgacccc 540  
 ttctgcccgc ccgaagcgt gccccgcgca gacgaagtgt ccgaagccgt taccctgttc 600  
 cagccgacac acggtggtca tgtcggcttt gtcggcagca ccggcggcag gctgcacctg 660  
 caatgggttg cgcagaccgt cctgtcctat ttcgacagct tccgcacaaa caggcgtaa 720

<210> 1010  
 <211> 239  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1010  
 Met Leu Ala Val Arg Asp Arg Gly Trp Asn Gly Val Val Val His Phe  
 1 5 10 15  
 Arg Ser Cys Gly Gly Val Ala Asn Thr Ala Pro Val Phe Tyr His Leu  
 20 25 30  
 Gly Asp Thr Ala Glu Ile Ala Phe Thr Leu Asp Thr Leu Ala Ala Arg  
 35 40 45  
 Tyr Arg Glu Ile Tyr Ala Val Gly Val Ser Leu Gly Gly Asn Ala Leu  
 50 55 60  
 Ala Lys Tyr Leu Gly Glu Gln Gly Glu Asn Ala Leu Pro Gln Ala Ala  
 65 70 75 80

Ala Val Ile Ser Ala Pro Val Asp Ala Glu Ala Ala Gly Asn Arg Phe  
85 90 95

Asp Ser Gly Ile Thr Arg Leu Leu Tyr Thr Arg Tyr Phe Leu Arg Thr  
100 105 110

Leu Ile Pro Lys Ala Arg Ser Leu Gln Gly Phe Gln Thr Ala Phe Ala  
115 120 125

Ala Gly Cys Lys Thr Leu Gly Glu Phe Asp Asp Arg Phe Thr Ala Pro  
130 135 140

Leu His Gly Phe Ala Asp Arg His Asp Tyr Tyr Arg Gln Thr Ser Cys  
145 150 155 160

Lys Pro Leu Leu Lys His Val Ala Lys Pro Leu Leu Leu Leu Asn Ala  
165 170 175

Val Asn Asp Pro Phe Leu Pro Pro Glu Ala Leu Pro Arg Ala Asp Glu  
180 185 190

Val Ser Glu Ala Val Thr Leu Phe Gln Pro Thr His Gly Gly His Val  
195 200 205

Gly Phe Val Gly Ser Thr Gly Gly Arg Leu His Leu Gln Trp Leu Pro  
210 215 220

Gln Thr Val Leu Ser Tyr Phe Asp Ser Phe Arg Thr Asn Arg Arg  
225 230 235

<210> 1011

<211> 960

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1011

atgattttga caccgcccga cagccctttt ttcctccgca acggcaatgc cgacacgatt 60  
gccgcaaatt tcctgcaaca ccccgcaccc gcataccgcc gcgagatget tcccgcacagc 120  
acgggtaaaa ccaaaaccgc ctacgacttt tcagcaggcg gcatttcgcc cgatgcgcgcg 180  
ctggctcgtgc tgtttcacgg tttggaagga agcagccgca gccattacgc ggtcgaactg 240  
atgctcgcgg tacgcaatcg ggttggtgcac ggcgagtcg tccatttcgc cagctgcggc 300  
ggcgtagcga acaccgcccc ggtgttctac cacttgggtg ataccgccga aatcgccctt 360  
gctttggaca cgctcaccgc gcgttaccgt gaaatatacg ccgtcggcgt atcgctgggc 420  
ggcaacgcgc cggcaaaata tttgggcgaa cagggcaaaa aggcattgcc gcacgcctcg 480  
gccgccgtat ccgccccgtg tgatgcagag gcggcaggca gccgcttcga cagcggcatc 540  
acgcggctgc tctacacgcg ctacttcctc cgcacactga tacccaaagc acgttcgctc 600  
caaggttttc agacggcatt tgccgcaggg tgcaaaacac tgggcgagtt tgacgaccgt 660  
ttcaccgcac cgctgcacgg ctttgccgac cggcacgact actaccgcca aacttcctgc 720  
aaaccgctgc tcaaacacgt tgccaaaccg ctgctcctgc tcaatgccgc caacgacccc 780  
ttcctgcgcg ccgaagccct gccccgtgca gacgaagcgt ccgaagccgt taccctgttc 840  
caacctgcac acggcgggca cgcgggcttt gtcagcagca ccggcggcag gctgcacctg 900  
caatggctgc cgcagaccgt cctgtcctat tttgacagct tccgcacaaa caggcggttaa 960

<210> 1012

<211> 319  
<212> PRT  
<213> *Neisseria gonorrhoeae*

<400> 1012

Met	Ile	Leu	Thr	Pro	Pro	Asp	Thr	Pro	Phe	Phe	Leu	Arg	Asn	Gly	Asn	
1				5				10						15		
Ala	Asp	Thr	Ile	Ala	Ala	Lys	Phe	Leu	Gln	His	Pro	Ala	Pro	Ala	Tyr	
			20					25					30			
Arg	Arg	Glu	Met	Leu	Pro	Asp	Ser	Thr	Gly	Lys	Thr	Lys	Thr	Ala	Tyr	
		35					40					45				
Asp	Phe	Ser	Ala	Gly	Gly	Ile	Ser	Pro	Asp	Ala	Pro	Leu	Val	Val	Leu	
	50					55					60					
Phe	His	Gly	Leu	Glu	Gly	Ser	Ser	Arg	Ser	His	Tyr	Ala	Val	Glu	Leu	
	65				70					75					80	
Met	Leu	Ala	Val	Arg	Asn	Arg	Gly	Trp	His	Gly	Ala	Val	Val	His	Phe	
				85					90					95		
Arg	Ser	Cys	Gly	Gly	Val	Ala	Asn	Thr	Ala	Pro	Val	Phe	Tyr	His	Leu	
			100					105					110			
Gly	Asp	Thr	Ala	Glu	Ile	Ala	Phe	Ala	Leu	Asp	Thr	Leu	Thr	Ala	Arg	
		115					120					125				
Tyr	Arg	Glu	Ile	Tyr	Ala	Val	Gly	Val	Ser	Leu	Gly	Gly	Asn	Ala	Pro	
	130					135					140					
Ala	Lys	Tyr	Leu	Gly	Glu	Gln	Gly	Lys	Lys	Ala	Leu	Pro	His	Ala	Ser	
	145				150					155					160	
Ala	Ala	Val	Ser	Ala	Pro	Val	Asp	Ala	Glu	Ala	Ala	Gly	Ser	Arg	Phe	
				165					170					175		
Asp	Ser	Gly	Ile	Thr	Arg	Leu	Leu	Tyr	Thr	Arg	Tyr	Phe	Leu	Arg	Thr	
			180					185					190			
Leu	Ile	Pro	Lys	Ala	Arg	Ser	Leu	Gln	Gly	Phe	Gln	Thr	Ala	Phe	Ala	
		195					200					205				
Ala	Gly	Cys	Lys	Thr	Leu	Gly	Glu	Phe	Asp	Asp	Arg	Phe	Thr	Ala	Pro	
	210					215					220					
Leu	His	Gly	Phe	Ala	Asp	Arg	His	Asp	Tyr	Tyr	Arg	Gln	Thr	Ser	Cys	
	225				230					235					240	
Lys	Pro	Leu	Leu	Lys	His	Val	Ala	Lys	Pro	Leu	Leu	Leu	Leu	Asn	Ala	
				245					250					255		
Ala	Asn	Asp	Pro	Phe	Leu	Pro	Pro	Glu	Ala	Leu	Pro	Arg	Ala	Asp	Glu	
			260					265					270			

Ala Ser Glu Ala Val Thr Leu Phe Gln Pro Ala His Gly Gly His Ala  
 275 280 285

Gly Phe Val Ser Ser Thr Gly Gly Arg Leu His Leu Gln Trp Leu Pro  
 290 295 300

Gln Thr Val Leu Ser Tyr Phe Asp Ser Phe Arg Thr Asn Arg Arg  
 305 310 315

<210> 1013

<211> 957

<212> DNA

<213> *Neisseria meningitidis*

<400> 1013

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atgatttttaa caccgcccga caccgcccttt ttctctccgca acggcaatgc cgacacgatt 60
gccgccaaat tcctgcaacg ccccgcgccc gcataccgcc gagagctgct tcccgcacagc 120
acgggtaaaa ccaaagtcgc ctacgacttt tcagacggca ttctgcccga tgcgcccgtg 180
gtcgtgctgt ttacagggtt ggaaggaagc agccgcagcc attacgcggt cgaactgatg 240
cttgccgtac gcgatcgggg ttggcacggc gtagtcgtcc atttccgcag ctgcggcggc 300
attgccaaca ccgctccggt gttctaccac ttgggcgata ccgccgaaat cgcctttact 360
ttggacacgt tcgccgcgcg ttaccgtgaa atatacgccg tcggcgatat gctggggcggc 420
aacgcgctgg caaaatat tggcgaaacag ggcaaaaagg cattgccgca agccgctgcc 480
gtcatctccg ccccgctcga tgcagaggcg gcaggcagac gcttcgacag cggcatcacg 540
cggctgctct acacgcgcta ctctctccgc accctgatac ccaaagcaaa atcgctccaa 600
ggttttcaga cggcatttgc cgcagggtgc aaaacactgg gcgagtttga cgaccgcttc 660
accgcaccgc tgcacggctt tgccgaccgg cagcactact accgccaaac ttcttgcaaa 720
ccgctgctca aacacgttgc caaacggctg ctctgtctca atgccgtcaa cgaccccttc 780
ctgccgcccg aagccctgcc ccgcgcagac gaagtatccg aagccgttac cctgttccag 840
ccggcatatg gtggtcatgt cggctttgtc agcagcaccg gcggcaggct gcacctgcaa 900
tggttgccgc agaccgtcct gtcctatttc gacagcttcc gcacaaacag gcgttaa 957
```

<210> 1014

<211> 318

<212> PRT

<213> *Neisseria meningitidis*

<400> 1014

Met Ile Leu Thr Pro Pro Asp Thr Pro Phe Phe Leu Arg Asn Gly Asn  
 1 5 10 15

Ala Asp Thr Ile Ala Ala Lys Phe Leu Gln Arg Pro Ala Pro Ala Tyr  
 20 25 30

Arg Arg Glu Leu Leu Pro Asp Ser Thr Gly Lys Thr Lys Val Ala Tyr  
 35 40 45

Asp Phe Ser Asp Gly Ile Ser Pro Asp Ala Pro Leu Val Val Leu Phe  
 50 55 60

His Gly Leu Glu Gly Ser Ser Arg Ser His Tyr Ala Val Glu Leu Met  
 65 70 75 80

Leu Ala Val Arg Asp Arg Gly Trp His Gly Val Val Val His Phe Arg  
 85 90 95

Ser Cys Gly Gly Ile Ala Asn Thr Ala Pro Val Phe Tyr His Leu Gly  
 100 105 110  
 Asp Thr Ala Glu Ile Ala Phe Thr Leu Asp Thr Phe Ala Ala Arg Tyr  
 115 120 125  
 Arg Glu Ile Tyr Ala Val Gly Val Ser Leu Gly Gly Asn Ala Leu Ala  
 130 135 140  
 Lys Tyr Leu Gly Glu Gln Gly Lys Lys Ala Leu Pro Gln Ala Ala Ala  
 145 150 155 160  
 Val Ile Ser Ala Pro Val Asp Ala Glu Ala Ala Gly Arg Arg Phe Asp  
 165 170 175  
 Ser Gly Ile Thr Arg Leu Leu Tyr Thr Arg Tyr Phe Leu Arg Thr Leu  
 180 185 190  
 Ile Pro Lys Ala Lys Ser Leu Gln Gly Phe Gln Thr Ala Phe Ala Ala  
 195 200 205  
 Gly Cys Lys Thr Leu Gly Glu Phe Asp Asp Arg Phe Thr Ala Pro Leu  
 210 215 220  
 His Gly Phe Ala Asp Arg His Asp Tyr Tyr Arg Gln Thr Ser Cys Lys  
 225 230 235 240  
 Pro Leu Leu Lys His Val Ala Lys Pro Leu Leu Leu Leu Asn Ala Val  
 245 250 255  
 Asn Asp Pro Phe Leu Pro Pro Glu Ala Leu Pro Arg Ala Asp Glu Val  
 260 265 270  
 Ser Glu Ala Val Thr Leu Phe Gln Pro Ala Tyr Gly Gly His Val Gly  
 275 280 285  
 Phe Val Ser Ser Thr Gly Gly Arg Leu His Leu Gln Trp Leu Pro Gln  
 290 295 300  
 Thr Val Leu Ser Tyr Phe Asp Ser Phe Arg Thr Asn Arg Arg  
 305 310 315

<210> 1015

<211> 957

<212> DNA

<213> Neisseria meningitidis

<400> 1015

atgattttga caccgcccga cacacccttt ttctctccga acggcaatgc cgacacgatt 60  
 gccgcaaat tcctgcaacg ctccgcacct gcataccgcc gcgagctgct tcccgcacagc 120  
 acgggtaaaa ccaaaaccgc ctacgacttt tcagacggca ttccgcccga tgcgccgctg 180  
 gtcgtgctgt ttcacggttt ggaggcgcc attacgcggt cgaactgatg 240  
 ctgcggttac gcgatcgggg ttggaacggc gtagtcgtcc atttccgcag ctgcggcgcc 300  
 gtagcgaaca ccgccccggt gttctaccac ttgggcgata ccgccgaaat tgcctttact 360  
 ttggacacgc tcgccgcgcg ttaccgtgaa atatacgccg tcggcgtatc gctgggcggc 420

```

aacgcgctgg caaaatattt gggcgaacag ggcgaaaacg cgctgccgca agccgcccgc 480
gtcatctccg caccgcgcga tgcagaggcg gcaggcaacc gcttcgacag cggcatcaca 540
cggtgctctt acacgcgcta ctctctccgc aacttgatac ccaaagcacg gtcgctccaa 600
ggttttcaga cggcatttgc cgcagggtgc aaaacactgg gcgagtttga cgaccgtttc 660
accgcaccgc tgcacggctt tgccgatcgg cagcactact accgcaaac ttcctgcaaa 720
ccgctgctca aacacgttgc caaacgctg ctctgctca atgccgtcaa cgacccttc 780
ctgccgcccg aagcgctgcc ccgcgcagac gaagtgtccg aagccgttac cctgttccag 840
ccgacacacg gtggtcatgt cggctttgtc ggcagcaccg gcggcagggt gcacctgcaa 900
tggttgccgc agaccgtcct gtcctatttc gacagcttcc gcacaaacag gcgttaa 957

```

<210> 1016

<211> 318

<212> PRT

<213> Neisseria meningitidis

<400> 1016

```

Met Ile Leu Thr Pro Pro Asp Thr Pro Phe Phe Leu Arg Asn Gly Asn
  1             5             10             15

```

```

Ala Asp Thr Ile Ala Ala Lys Phe Leu Gln Arg Ser Ala Pro Ala Tyr
      20             25             30

```

```

Arg Arg Glu Leu Leu Pro Asp Ser Thr Gly Lys Thr Lys Thr Ala Tyr
      35             40             45

```

```

Asp Phe Ser Asp Gly Ile Ser Pro Asp Ala Pro Leu Val Val Leu Phe
      50             55             60

```

```

His Gly Leu Glu Gly Gly Ser Gly Ser His Tyr Ala Val Glu Leu Met
      65             70             75             80

```

```

Leu Ala Val Arg Asp Arg Gly Trp Asn Gly Val Val Val His Phe Arg
      85             90             95

```

```

Ser Cys Gly Gly Val Ala Asn Thr Ala Pro Val Phe Tyr His Leu Gly
      100            105            110

```

```

Asp Thr Ala Glu Ile Ala Phe Thr Leu Asp Thr Leu Ala Ala Arg Tyr
      115            120            125

```

```

Arg Glu Ile Tyr Ala Val Gly Val Ser Leu Gly Gly Asn Ala Leu Ala
      130            135            140

```

```

Lys Tyr Leu Gly Glu Gln Gly Glu Asn Ala Leu Pro Gln Ala Ala Ala
      145            150            155            160

```

```

Val Ile Ser Ala Pro Val Asp Ala Glu Ala Ala Gly Asn Arg Phe Asp
      165            170            175

```

```

Ser Gly Ile Thr Arg Leu Leu Tyr Thr Arg Tyr Phe Leu Arg Thr Leu
      180            185            190

```

```

Ile Pro Lys Ala Arg Ser Leu Gln Gly Phe Gln Thr Ala Phe Ala Ala
      195            200            205

```

```

Gly Cys Lys Thr Leu Gly Glu Phe Asp Asp Arg Phe Thr Ala Pro Leu

```





Glu Val Ala Arg Leu Glu Lys Met Phe Ser Leu Tyr Arg Glu Asp Ser  
85 90 95

Leu Ile Ser Arg Leu Asn Arg Asp Gly Tyr Leu Thr Ser Pro Pro Ala  
100 105 110

Asp Phe Leu Glu Leu Leu Ser Leu Ala Ala Ile Phe Thr Arg  
115 120 125

<210> 1019

<211> 378

<212> DNA

<213> Neisseria meningitidis

<400> 1019

atgggcaggc atttcgggcg cagcgttttc tgacggttgc cgccgttgcg gcgggggacgc 60  
ggcggtttct ttctgccga atccttttgc cgccgatgat gaaaaacgca acgggggatga 120  
aaaacgcaat gaaaatgtgt ttttctggaa aggtgtcgca ctgggttccg gtgcgggactc 180  
cgtctgttcg gtgtggacga caggcgtgcg gcggatttgg tcaacaagggt tttggcggaa 240  
gtggcgcggtt tggaaaaatt gttcagcctt taccgtgaag acagcctgat cagccgcctg 300  
aacagggacg gttatctgac ttcgccgtcg gcggattttt tggaactgkt gagcctggcc 360  
gcgatattca cgckctga 378

<210> 1020

<211> 126

<212> PRT

<213> Neisseria meningitidis

<400> 1020

Met Gly Arg His Phe Gly Xaa Gln Arg Phe Leu Thr Val Ala Ala Val  
1 5 10 15

Ala Ala Gly Xaa Ala Ala Val Ser Phe Leu Pro Asn Pro Phe Ala Ala  
20 25 30

Asp Asp Glu Lys Arg Asn Gly Asp Glu Lys Arg Asn Glu Asn Val Phe  
35 40 45

Phe Trp Lys Gly Val Ala Leu Gly Ser Gly Ala Xaa Leu Arg Leu Phe  
50 55 60

Gly Val Asp Asp Arg Arg Ala Ala Asp Leu Val Asn Lys Val Leu Ala  
65 70 75 80

Glu Val Ala Arg Leu Glu Lys Leu Phe Ser Leu Tyr Arg Glu Asp Ser  
85 90 95

Leu Ile Ser Arg Leu Asn Arg Asp Gly Tyr Leu Thr Ser Pro Ser Ala  
100 105 110

Asp Phe Leu Glu Leu Xaa Ser Leu Ala Ala Ile Phe Thr Xaa  
115 120 125

<210> 1021

<211> 381  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 1021

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gcggcggttt ctttcctgcc gaatcctttt gccgccgatg atgaaaaacg caataaagat 120
gaaaaacgca atgaaaatgt gtttttcttg aaagggtgctg cactgggttc cggcgaggag 180
ctccgtctgt tcgggtgtgga cgacaggcgt gcggcggatt tggtaacaa ggttttggcg 240
gaagtggcgc gtttgaaaaa aatgttcagc ctttaccgtg aagacagcct gatcagccgt 300
ctgaaccgtg acggttattt gacttcgccg ccggcggatt ttttggaact gttgagcctg 360
gccgtgatat tcacgcgctg a                                     381
```

<210> 1022  
<211> 126  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 1022

```
Met Gly Arg His Phe Gly Arg Arg Arg Phe Leu Thr Val Ala Ala Val
 1             5             10             15

Ala Ala Ala Gly Ala Ala Val Ser Phe Leu Pro Asn Pro Phe Ala Ala
          20             25             30

Asp Asp Glu Lys Arg Asn Lys Asp Glu Lys Arg Asn Glu Asn Val Phe
          35             40             45

Phe Trp Lys Gly Val Ala Leu Gly Ser Gly Ala Glu Leu Arg Leu Phe
          50             55             60

Gly Val Asp Asp Arg Arg Ala Ala Asp Leu Val Asn Lys Val Leu Ala
          65             70             75             80

Glu Val Ala Arg Leu Glu Lys Met Phe Ser Leu Tyr Arg Glu Asp Ser
          85             90             95

Leu Ile Ser Arg Leu Asn Arg Asp Gly Tyr Leu Thr Ser Pro Pro Ala
          100            105            110

Asp Phe Leu Glu Leu Leu Ser Leu Ala Val Ile Phe Thr Arg
          115            120            125
```

<210> 1023  
<211> 1203  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 1023

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atgcgccgct tcctaccgat cgcagccata tgcgccgtcg tcctgctgta cggattgacg 60
gcggcgaccg gcagcaccag ttcgctggcg gattatttct ggtggatagt ctcgttcagc 120
gcaatgctgc tgctggtgtt gtccgccgtt ttggcacgtt atgtcatatt gctgttgaaa 180
gacaggcgca acggcgtgtt cggttcgcag attgccaaac gcctttccgg gatgttcacg 240
ctggtcgccg tactgcccg cttgttcctg ttcggcattt ccgcgcagtt tatcaacggc 300
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```

acgattaatt cgtgggttcgg caacgacacc cacgaagccc tcgaacgcag ccttaatttg 360
agcaagtccg cactggattt ggcggcagac aatgccgtca gcaacgccgt tcccgtacag 420
atagacctca tcggcaccgc ctccctgtcg ggcaatatgg gcagtgtgct ggaacactac 480
gccggcagcg gttttgccc gcttgccctg tacaatgccg caagcgggaa aatcgaaaaa 540
agcatcaatc cgcaccaatt cgaccagccg cttcccgaca aagaacattg ggaacagatt 600
cagcagaccg gttcgggttcg gagtttggaa agcataggcg gcgtattgta cgcgcaggga 660
tggttgtcgg caggtagcga caacggggcgc gattacgcgc tgttcttccg ccagccgatt 720
cccgaaaatg tggcacagga tgccgttctg attgaaaagg cgcggggcgaa atatgccgaa 780
ttgagttaca gcaaaaaagg tttgcagacc ttttttctgg taaccctgct gattgcctcg 840
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cgccccgtat tgcgcaacga cgagttcggg cgtttgacca agctgttcaa ccatatgacc 1020
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cgtcactacc tcgagtgcgt gttggatggg ttgactaccg gtgtgggtgt ctcttaccct 1140
ctctcttgtt gccgtaccgc ggtgttttcc acttgtcatt cctcccctct ttcttatttc 1200
taa 1203

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<210> 1024

<211> 400

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1024

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Met Arg Arg Phe Leu Pro Ile Ala Ala Ile Cys Ala Val Val Leu Leu
 1             5             10             15

Tyr Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
      20             25             30

Phe Trp Trp Ile Val Ser Phe Ser Ala Met Leu Leu Leu Val Leu Ser
 35             40             45

Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asn
 50             55             60

Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
 65             70             75             80

Leu Val Ala Val Leu Pro Gly Leu Phe Leu Phe Gly Ile Ser Ala Gln
      85             90             95

Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
100             105             110

Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asp Leu Ala
115             120             125

Ala Asp Asn Ala Val Ser Asn Ala Val Pro Val Gln Ile Asp Leu Ile
130             135             140

Gly Thr Ala Ser Leu Ser Gly Asn Met Gly Ser Val Leu Glu His Tyr
145             150             155             160

Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
165             170             175

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Lys Ile Glu Lys Ser Ile Asn Pro His Gln Phe Asp Gln Pro Leu Pro  
 180 185 190  
 Asp Lys Glu His Trp Glu Gln Ile Gln Gln Thr Gly Ser Val Arg Ser  
 195 200 205  
 Leu Glu Ser Ile Gly Gly Val Leu Tyr Ala Gln Gly Trp Leu Ser Ala  
 210 215 220  
 Gly Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Ile  
 225 230 235 240  
 Pro Glu Asn Val Ala Gln Asp Ala Val Leu Ile Glu Lys Ala Arg Ala  
 245 250 255  
 Lys Tyr Ala Glu Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe  
 260 265 270  
 Leu Val Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu  
 275 280 285  
 Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Ile Leu Ser  
 290 295 300  
 Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr  
 305 310 315 320  
 Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe  
 325 330 335  
 Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg  
 340 345 350  
 Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu  
 355 360 365  
 Asp Gly Leu Thr Thr Gly Val Val Val Ser Tyr Pro Leu Ser Cys Cys  
 370 375 380  
 Arg Thr Ala Val Phe Ser Thr Cys His Ser Ser Pro Leu Ser Tyr Phe  
 385 390 395 400

<210> 1025

<211> 1767

<212> DNA

<213> *Neisseria meningitidis*

<400> 1025

atgcgccgtt ttctaccgat cgcagccata tgcgccgtcg tcctgttgta cggactgacg 60  
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 gcaatgctgc tgctggtgtt gtccgccgtt ttggcacgtt atgtcatatt gctgttgaaa 180  
 gacaggcgcg acggcgtatt cggttcgcag attgccaaac gcctttctgg gatgtttacg 240

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ctggttgccg tactgcccgg cgtgtttctg ttcggcgctt ccgcacagtt catcaacggc 300
acgattaatt cgtggttcgg caacgatacc cagcaggcgc ttgaacgcag cctcaatttg 360
agcaagtccg cattgaattt ggcggcagac aacgccctcg gcaacgccgt ccccggtgcag 420
atagacctca tcggcgcggc ttcctgccc ggggatatgg gcagggtgct ggaacattac 480
gccggcagcg gttttgccc gcttgccctg tacaatgccg caagcggcaa aatcgaaaaa 540
agcatcaacc cgcacaagct cgatcagccg tttccaggta aggcgcgttg ggaaaaaatc 600
caacgggagg gttcggtcag ggatttggaa agcataggcg gcgtattgta cgcgcagggc 660
tggctgtcgg cgggtacgca caacgggagg gattacgcct tgtttttccg tcagccgggt 720
cccaaaggcg tggcagagga tgccgtctta atcgaaaagg caagggcgaa atatgctgag 780
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cccgtcctat cgcttgccga gggggcgaag gcggtggcgc aaggcgattt cagccagacg 960
cgccccgtgt tgcgcaacga cgagttcgga cgcttgacca agttgttcaa ccacatgacc 1020
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aggcattatc ttgaatgcgt gttggagggg ctgaccacgg gcgtggtggt gtttgacgaa 1140
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cccctgtggg gcagcagccg gcacggttgg cacggcgctt cggcgcagca gtccctgctt 1260
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aacggcaacg gcgtggtaat ggtgattgac gacatcacgg ttttgataca cgcgcaaaaa 1440
gaagccgcgt ggggcgaagt ggcgaagcgg ctggcacacg aaatccgcaa tccgctcacg 1500
cccatccagc tttccgccga acggstggcg tkgaaattgg gcgggaagct ggatgagcag 1560
gatgcgcaaa tcctgacgcg ttcgaccgac accatcgtea aacaggtggc ggcattgaag 1620
gaaatggtcg aagcattccg caattatgcg cgttcccctt cgctcaaatt ggaaaatcag 1680
gatttgaacg ccttaatcgg cgatgtgttg gcattgtatg aagccgggtc gtgccgggtt 1740
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<210> 1026

<211> 588

<212> PRT

<213> Neisseria meningitidis

<400> 1026

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Met Arg Arg Phe Leu Pro Ile Ala Ala Ile Cys Ala Val Val Leu Leu
  1              5              10              15

Tyr Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
      20              25              30

Phe Trp Trp Ile Val Ala Phe Ser Ala Met Leu Leu Leu Val Leu Ser
      35              40              45

Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asp
      50              55              60

Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
      65              70              75              80

Leu Val Ala Val Leu Pro Gly Val Phe Leu Phe Gly Val Ser Ala Gln
      85              90              95

Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
      100             105             110

Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asn Leu Ala
      115             120             125

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Ala	Asp	Asn	Ala	Leu	Gly	Asn	Ala	Val	Pro	Val	Gln	Ile	Asp	Leu	Ile	130	135	140
Gly	Ala	Ala	Ser	Leu	Pro	Gly	Asp	Met	Gly	Arg	Val	Leu	Glu	His	Tyr	145	150	155
Ala	Gly	Ser	Gly	Phe	Ala	Gln	Leu	Ala	Leu	Tyr	Asn	Ala	Ala	Ser	Gly	165	170	175
Lys	Ile	Glu	Lys	Ser	Ile	Asn	Pro	His	Lys	Leu	Asp	Gln	Pro	Phe	Pro	180	185	190
Gly	Lys	Ala	Arg	Trp	Glu	Lys	Ile	Gln	Arg	Ala	Gly	Ser	Val	Arg	Asp	195	200	205
Leu	Glu	Ser	Ile	Gly	Gly	Val	Leu	Tyr	Ala	Gln	Gly	Trp	Leu	Ser	Ala	210	215	220
Gly	Thr	His	Asn	Gly	Arg	Asp	Tyr	Ala	Leu	Phe	Phe	Arg	Gln	Pro	Val	225	230	235
Pro	Lys	Gly	Val	Ala	Glu	Asp	Ala	Val	Leu	Ile	Glu	Lys	Ala	Arg	Ala	245	250	255
Lys	Tyr	Ala	Glu	Leu	Ser	Tyr	Ser	Lys	Lys	Gly	Leu	Gln	Thr	Phe	Phe	260	265	270
Leu	Ala	Thr	Leu	Leu	Ile	Ala	Ser	Leu	Leu	Ser	Ile	Phe	Leu	Ala	Leu	275	280	285
Val	Met	Ala	Leu	Tyr	Phe	Ala	Arg	Arg	Phe	Val	Glu	Pro	Val	Leu	Ser	290	295	300
Leu	Ala	Glu	Gly	Ala	Lys	Ala	Val	Ala	Gln	Gly	Asp	Phe	Ser	Gln	Thr	305	310	315
Arg	Pro	Val	Leu	Arg	Asn	Asp	Glu	Phe	Gly	Arg	Leu	Thr	Lys	Leu	Phe	325	330	335
Asn	His	Met	Thr	Glu	Gln	Leu	Ser	Ile	Ala	Lys	Glu	Ala	Asp	Glu	Arg	340	345	350
Asn	Arg	Arg	Arg	Glu	Glu	Ala	Ala	Arg	His	Tyr	Leu	Glu	Cys	Val	Leu	355	360	365
Glu	Gly	Leu	Thr	Thr	Gly	Val	Val	Val	Phe	Asp	Glu	Gln	Gly	Cys	Leu	370	375	380
Lys	Thr	Phe	Asn	Lys	Ala	Ala	Glu	Gln	Ile	Leu	Gly	Met	Pro	Leu	Thr	385	390	395
Pro	Leu	Trp	Gly	Ser	Ser	Arg	His	Gly	Trp	His	Gly	Val	Ser	Ala	Gln	405	410	415
Gln	Ser	Leu	Leu	Ala	Glu	Val	Phe	Ala	Ala	Ile	Gly	Ala	Ala	Ala	Gly	420	425	430

Thr Asp Lys Pro Val His Val Lys Tyr Ala Ala Pro Asp Asp Ala Lys  
 435 440 445  
 Ile Leu Leu Gly Lys Ala Thr Val Leu Pro Glu Asp Asn Gly Asn Gly  
 450 455 460  
 Val Val Met Val Ile Asp Asp Ile Thr Val Leu Ile His Ala Gln Lys  
 465 470 475 480  
 Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg  
 485 490 495  
 Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu Arg Xaa Ala Xaa Lys  
 500 505 510  
 Leu Gly Gly Lys Leu Asp Glu Gln Asp Ala Gln Ile Leu Thr Arg Ser  
 515 520 525  
 Thr Asp Thr Ile Val Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu  
 530 535 540  
 Ala Phe Arg Asn Tyr Ala Arg Ser Pro Ser Leu Lys Leu Glu Asn Gln  
 545 550 555 560  
 Asp Leu Asn Ala Leu Ile Gly Asp Val Leu Ala Leu Tyr Glu Ala Gly  
 565 570 575  
 Pro Cys Arg Phe Ala Ala Asp Leu Pro Ala Asn Arg  
 580 585

<210> 1027

<211> 2121

<212> DNA

<213> *Neisseria meningitidis*

<400> 1027

atgcgccgtt ttctaccgat cgcagccata tgcgccgtcg tcctgttgta cggactgacg 60  
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 gcaatgctgc tgctggtggt gtccgccgtt ttggcaagtt atgtcatatt gctgttgaaa 180  
 gacaggcgcg acggcggtatt cggttcgagc attgccaaac gcctttccgg gatgtttacg 240  
 ctggttgccg tactgcccgg cgtgtttctg ttccggcgtt ccgcacagtt tatcaacggc 300  
 acgattaatt cgtggttcgg caacgatacc cagcaggcgc ttgaacgcag cctcaatttg 360  
 agcaagtccg cattgaatct ggcggcagac aacgcccttg gcaacgccat ccccgtcag 420  
 atagacctca tcggcgccgg ttccctgccc ggggatattg gcagggtgct ggaacattac 480  
 gccggcagcg gttttgccca gcttgccctg tacaatgccg caagcggcaa aatcgaaaaa 540  
 agcatcaacc cgcacaagct cgatcagccg tttccaggta aggcgcgttg ggaaaaaatc 600  
 caacaggcgg gttcggtcag ggatttgga agcataggcg gcgtattgta cgcgcagggc 660  
 tggctgtcgg caggtagcga caacgggcgc gattacgcct tgtttttccg tcagccggtt 720  
 cccaaaggcg tggcagagga tgccgtctta atcgaaaagg caagggcgaa atatgctgag 780  
 ttgagttaca gcaaaaaagg tttgcagacc tttttcctgg caaccctgct gattgcctcg 840  
 ctgctgtcga tttttcttgc actggtcatg gcactgtatt tcgcccgcgg tttcgtcgaa 900  
 cccgtcctat cgcttgccga gggggcgaag gcggtggcgc aaggcgattt cagccagacg 960  
 cgccccgtgt tgcgcaacga cgagttcgga cgcttgacca agttgttcaa ccacatgacc 1020  
 gagcagcttt ccacgcgcaa agaagcagac gagcgcaacc gccggcgaga ggaagccgcc 1080  
 agacattatc tcgaatgcgt gttggagggg ctgaccacgg gcgtggtggt gtttgacgaa 1140



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caaggctgtc tgaaaacctt caacaaagcg gcggaacaga ttttggggat gccgcttacc 1200
cccctgtggg gcagcagccg gcacggtttg cacggcgttt cggcgcagca gtccctgttt 1260
gccgaagtgt ttgccgccat cggcgcggcg gcaggtacgg acaaaccggt ccatgtgaaa 1320
tatgccgcgc cggacgatgc caaaatcctg ctgggcaagg caaccgtcct gcccgagac 1380
aacggcaacg gcgtggtaat ggtgattgac gacatcaccg ttttgataca cgcgcaaaaa 1440
gaagccgcgt ggggcgaagt ggcaaaacgg ctggcacacg aaatccgcaa tccgctcacg 1500
cccatccagc tttctgccga acggctggcg tggaaattgg gcgggaagct ggacgagcag 1560
gacgcgcaaa tcctgacacg ttcgaccgac accatcatca aacaagtggc ggcatataaa 1620
gaaatggtcg aggcattccg caattacgcg cgttccctt cgctcaaatt ggaaaatcag 1680
gatttgaacg ccttaatcgg cgatgtgttg gcattgtacg aagctggtcc gtgccggttt 1740
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gtgctgcaca atattttcaa aaatgccgcc gaagcggcgg aagaagccga tgtgcccga 1860
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ccggctggaa cgggattggg actgccgtg gtgaaaaaaa tcattgaaga acacggcggc 2040
cgcacagacc tgagcaatca ggatgcgggc gcgcgctgtg tcagaatcat cttgccaaaa 2100
acggtagaaa cttatgcgta g                                     2121

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<210> 1028

<211> 706

<212> PRT

<213> Neisseria meningitidis

<400> 1028

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Met Arg Arg Phe Leu Pro Ile Ala Ala Ile Cys Ala Val Val Leu Leu
 1             5             10             15

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```

Tyr Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
      20             25             30

```

```

Phe Trp Trp Ile Val Ala Phe Ser Ala Met Leu Leu Leu Val Leu Ser
 35             40             45

```

```

Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asp
 50             55             60

```

```

Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
 65             70             75             80

```

```

Leu Val Ala Val Leu Pro Gly Val Phe Leu Phe Gly Val Ser Ala Gln
      85             90             95

```

```

Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
 100            105            110

```

```

Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asn Leu Ala
 115            120            125

```

```

Ala Asp Asn Ala Leu Gly Asn Ala Ile Pro Val Gln Ile Asp Leu Ile
 130            135            140

```

```

Gly Ala Ala Ser Leu Pro Gly Asp Met Gly Arg Val Leu Glu His Tyr
 145            150            155            160

```

```

Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
 165            170            175

```

Lys	Ile	Glu	Lys	Ser	Ile	Asn	Pro	His	Lys	Leu	Asp	Gln	Pro	Phe	Pro
			180						185						190
Gly	Lys	Ala	Arg	Trp	Glu	Lys	Ile	Gln	Gln	Ala	Gly	Ser	Val	Arg	Asp
		195					200					205			
Leu	Glu	Ser	Ile	Gly	Gly	Val	Leu	Tyr	Ala	Gln	Gly	Trp	Leu	Ser	Ala
	210					215					220				
Gly	Thr	His	Asn	Gly	Arg	Asp	Tyr	Ala	Leu	Phe	Phe	Arg	Gln	Pro	Val
225					230					235					240
Pro	Lys	Gly	Val	Ala	Glu	Asp	Ala	Val	Leu	Ile	Glu	Lys	Ala	Arg	Ala
				245					250					255	
Lys	Tyr	Ala	Glu	Leu	Ser	Tyr	Ser	Lys	Lys	Gly	Leu	Gln	Thr	Phe	Phe
			260					265					270		
Leu	Ala	Thr	Leu	Leu	Ile	Ala	Ser	Leu	Leu	Ser	Ile	Phe	Leu	Ala	Leu
		275					280					285			
Val	Met	Ala	Leu	Tyr	Phe	Ala	Arg	Arg	Phe	Val	Glu	Pro	Val	Leu	Ser
	290					295					300				
Leu	Ala	Glu	Gly	Ala	Lys	Ala	Val	Ala	Gln	Gly	Asp	Phe	Ser	Gln	Thr
305					310					315					320
Arg	Pro	Val	Leu	Arg	Asn	Asp	Glu	Phe	Gly	Arg	Leu	Thr	Lys	Leu	Phe
				325					330					335	
Asn	His	Met	Thr	Glu	Gln	Leu	Ser	Ile	Ala	Lys	Glu	Ala	Asp	Glu	Arg
			340					345					350		
Asn	Arg	Arg	Arg	Glu	Glu	Ala	Ala	Arg	His	Tyr	Leu	Glu	Cys	Val	Leu
		355					360					365			
Glu	Gly	Leu	Thr	Thr	Gly	Val	Val	Val	Phe	Asp	Glu	Gln	Gly	Cys	Leu
	370				375						380				
Lys	Thr	Phe	Asn	Lys	Ala	Ala	Glu	Gln	Ile	Leu	Gly	Met	Pro	Leu	Thr
385				390						395					400
Pro	Leu	Trp	Gly	Ser	Ser	Arg	His	Gly	Trp	His	Gly	Val	Ser	Ala	Gln
				405					410					415	
Gln	Ser	Leu	Leu	Ala	Glu	Val	Phe	Ala	Ala	Ile	Gly	Ala	Ala	Ala	Gly
			420					425					430		
Thr	Asp	Lys	Pro	Val	His	Val	Lys	Tyr	Ala	Ala	Pro	Asp	Asp	Ala	Lys
		435					440					445			
Ile	Leu	Leu	Gly	Lys	Ala	Thr	Val	Leu	Pro	Glu	Asp	Asn	Gly	Asn	Gly
	450					455					460				
Val	Val	Met	Val	Ile	Asp	Asp	Ile	Thr	Val	Leu	Ile	His	Ala	Gln	Lys
465					470					475					480

Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg  
485 490 495

Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu Arg Leu Ala Trp Lys  
500 505 510

Leu Gly Gly Lys Leu Asp Glu Gln Asp Ala Gln Ile Leu Thr Arg Ser  
515 520 525

Thr Asp Thr Ile Ile Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu  
530 535 540

Ala Phe Arg Asn Tyr Ala Arg Ser Pro Ser Leu Lys Leu Glu Asn Gln  
545 550 555 560

Asp Leu Asn Ala Leu Ile Gly Asp Val Leu Ala Leu Tyr Glu Ala Gly  
565 570 575

Pro Cys Arg Phe Ala Ala Glu Leu Ala Gly Glu Pro Leu Met Met Ala  
580 585 590

Ala Asp Thr Thr Ala Met Arg Gln Val Leu His Asn Ile Phe Lys Asn  
595 600 605

Ala Ala Glu Ala Ala Glu Glu Ala Asp Val Pro Glu Val Arg Val Lys  
610 615 620

Ser Glu Ala Gly Gln Asp Gly Arg Ile Val Leu Thr Val Cys Asp Asn  
625 630 635 640

Gly Lys Gly Phe Gly Arg Glu Met Leu His Asn Ala Phe Glu Pro Tyr  
645 650 655

Val Thr Asp Lys Pro Ala Gly Thr Gly Leu Gly Leu Pro Val Val Lys  
660 665 670

Lys Ile Ile Glu Glu His Gly Gly Arg Ile Ser Leu Ser Asn Gln Asp  
675 680 685

Ala Gly Gly Ala Cys Val Arg Ile Ile Leu Pro Lys Thr Val Glu Thr  
690 695 700

Tyr Ala  
705

<210> 1029

<211> 651

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1029

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tttgccggtt ttttgaccgc gcaaattctgg ttcaatcaga aagcctatac tgaagagctg 120  
cctccgcttc tgtccgcatt gtccgccgtc gcgctggtgt ggctggcgtg ggcgttcgtg 180  
tcggtgctgt caaaggctaa ggcagaaaag ttctaccgcg aaaaaatgat acagaacgaa 240

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agcatacacc ccgtcctgca cgcttctttg caacacttgg aacacaagcc gcaaattgctc 300
gccctgctgg tcaaaaacca cggcaaaggc atggcggaac aggtcagggt caaggcgga 360
gtgctgcccg acgacgaaga cgcgcgcacg attgccgccg agttggcaaa aatggatatg 420
ttcgatttgg ggacggacgc ggtcgctcgc ggcgaaacct atgggcgcgt gttcgccgat 480
attttcgagt tgtcggcggc tttggaaagg cgcgcgttca aagggatact gaaactgacg 540
gcggaatata aaaaacatct tcggcgatgc ctgccgttcg gaaacggcgt tggatttggg 600
cgcgctcaat caggcgttga gggaaatctc gaaaacgccg gaaaagccta a 651

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<210> 1030

<211> 216

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1030

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Met Met Met His Ala Ser Val Gln Ser Arg Phe Ala Pro Ile Leu Tyr
 1          5          10          15

Val Leu Ile Phe Phe Ala Gly Phe Leu Thr Ala Gln Ile Trp Phe Asn
          20          25          30

Gln Lys Ala Tyr Thr Glu Glu Leu Pro Pro Leu Leu Ser Ala Leu Ser
          35          40          45

Ala Val Ala Leu Val Trp Leu Ala Trp Ala Phe Val Ser Val Arg Ser
          50          55          60

Lys Ala Lys Ala Glu Lys Phe Tyr Arg Glu Lys Met Ile Gln Asn Glu
          65          70          75          80

Ser Ile His Pro Val Leu His Ala Ser Leu Gln His Leu Glu His Lys
          85          90          95

Pro Gln Met Leu Ala Leu Leu Val Lys Asn His Gly Lys Gly Met Ala
          100          105          110

Glu Gln Val Arg Phe Lys Ala Glu Val Leu Pro Asp Asp Glu Asp Ala
          115          120          125

Arg Thr Ile Ala Ala Glu Leu Ala Lys Met Asp Met Phe Ala Leu Gly
          130          135          140

Thr Asp Ala Val Ala Ser Gly Glu Thr Tyr Gly Arg Val Phe Ala Asp
          145          150          155          160

Ile Phe Glu Leu Ser Ala Ala Leu Glu Arg Arg Ala Phe Lys Gly Ile
          165          170          175

Leu Lys Leu Thr Ala Glu Tyr Lys Lys His Leu Arg Arg Cys Leu Pro
          180          185          190

Phe Gly Asn Gly Val Gly Phe Gly Arg Ala Gln Ser Gly Val Glu Gly
          195          200          205

Asn Leu Glu Asn Ala Gly Lys Ala
          210          215

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<210> 1031  
 <211> 641  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1031  
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 cctccgcttc tgtccgcatt gtccgccgtc gcgctggtgt ggctggcgtg ggcgttcgtg 180  
 tcggcgcggtt caaaggccaa ggcggaagag ttctaccgcg aaaaaatgat acagaacgaa 240  
 agcatacacc ccgtcstgca cgcctctttg caacacttgg aacacaagcc gcaaatactc 300  
 gccctgctgg tcaaaaacca cggcaaaggg atggcggaac aggtcagggt caaggcggaa 360  
 gtgctgccc acgacgaaga cgcgcgcacg attgccgccg agttggcaaa aatggatatg 420  
 ttgcgattgg ggaackgaagc ggtcgccctcg ggcgaaacct atggacgcgt gttcgccgat 480  
 attttcgagt tgcggmggc tttggaaggc cgcgcgttca aaggaatgtt gaaactgacg 540  
 gcggaatata aaaacatctt cggmgatgcc tgccgttcgg aaacggcggt ggagttgggc 600  
 gcactcaatc aggcgttgca ggagatttca aaaacatccg g 641

<210> 1032  
 <211> 214  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1032  
 Met Met Met His Ala Ser Val Gln Ser Arg Phe Ala Pro Ile Leu Tyr  
 1 5 10 15  
 Val Leu Ile Phe Phe Ala Gly Phe Leu Thr Ala Gln Ile Trp Phe Asn  
 20 25 30  
 Gln Lys Ala Tyr Thr Glu Glu Leu Pro Pro Leu Leu Ser Ala Leu Ser  
 35 40 45  
 Ala Val Ala Leu Val Trp Leu Ala Trp Ala Phe Val Ser Ala Arg Ser  
 50 55 60  
 Lys Ala Lys Ala Glu Lys Phe Tyr Arg Glu Lys Met Ile Gln Asn Glu  
 65 70 75 80  
 Ser Ile His Pro Val Xaa His Ala Ser Leu Gln His Leu Glu His Lys  
 85 90 95  
 Pro Gln Ile Leu Ala Leu Leu Val Lys Asn His Gly Lys Gly Met Ala  
 100 105 110  
 Glu Gln Val Arg Phe Lys Ala Glu Val Leu Pro Asp Asp Glu Asp Ala  
 115 120 125  
 Arg Thr Ile Ala Ala Glu Leu Ala Lys Met Asp Met Phe Ala Leu Gly  
 130 135 140  
 Thr Asp Ala Val Ala Ser Gly Glu Thr Tyr Gly Arg Val Phe Ala Asp  
 145 150 155 160

Ile Phe Glu Leu Ser Xaa Ala Leu Glu Gly Arg Ala Phe Lys Gly Met  
165 170 175

Leu Lys Leu Thr Ala Glu Tyr Lys Xaa His Leu Arg Arg Cys Leu Pro  
180 185 190

Phe Gly Asn Gly Val Gly Val Gly Arg Thr Gln Ser Gly Val Ala Gly  
195 200 205

Asp Phe Lys Asn Ile Arg  
210

<210> 1033  
<211> 650  
<212> DNA  
<213> Neisseria meningitidis

<400> 1033  
atgatgatgc acgcttctgt ccaaagccgt ttgcaccga tactttatgt tttgattttc 60  
tttgccggtt ttttgaccgc gcaaactctgg ttcaatcaga aagcctatac tgaagagctg 120  
cctccgcttc tgtccgcatt gtccgccgtc gcgctggtgt ggctggcgtg ggcgttcgtg 180  
tcggcgcggtt caaaggctaa ggcggaaaag ttctaccgcg aaaaaatgat acagaacgaa 240  
agcatacacc ccgtcctgca cgcttctttg caacacttgg aacacaagcc gcaaattgctc 300  
gccctgctgg tcaaaaacca cggcaaaggg atggcggaac aggtcaggtt caaggcggaa 360  
gtgctgcccg acgacgaaga cgcgcgcacg attgccgcg agttggcaaa aatggatatg 420  
tttgcaattg ggacggacgc ggtcgctcgc ggcgaaacct atggacgcgt gttcgccgat 480  
attttcgagt tgtcggcggc tttggaaggc cgcgcgttca aaggaatgtt gaaactgacg 540  
gcggaatata aaaacatctt cggcgatgcc tgccgttcgg aaacggcggtt ggagttgggc 600  
gcgctcaatc aggcgttgca ggagatttca aaaacatcgg aaaagtccaa 650

<210> 1034  
<211> 217  
<212> PRT  
<213> Neisseria meningitidis

<400> 1034  
Met Met Met His Ala Ser Val Gln Ser Arg Phe Ala Pro Ile Leu Tyr  
1 5 10 15

Val Leu Ile Phe Phe Ala Gly Phe Leu Thr Ala Gln Ile Trp Phe Asn  
20 25 30

Gln Lys Ala Tyr Thr Glu Glu Leu Pro Pro Leu Leu Ser Ala Leu Ser  
35 40 45

Ala Val Ala Leu Val Trp Leu Ala Trp Ala Phe Val Ser Ala Arg Ser  
50 55 60

Lys Ala Lys Ala Glu Lys Phe Tyr Arg Glu Lys Met Ile Gln Asn Glu  
65 70 75 80

Ser Ile His Pro Val Leu His Ala Ser Leu Gln His Leu Glu His Lys  
85 90 95

Pro Gln Met Leu Ala Leu Leu Val Lys Asn His Gly Lys Gly Met Ala  
100 105 110

Glu Gln Val Arg Phe Lys Ala Glu Val Leu Pro Asp Asp Glu Asp Ala  
115 120 125

Arg Thr Ile Ala Ala Glu Leu Ala Lys Met Asp Met Phe Ala Leu Gly  
130 135 140

Thr Asp Ala Val Ala Ser Gly Glu Thr Tyr Gly Arg Val Phe Ala Asp  
145 150 155 160

Ile Phe Glu Leu Ser Ala Ala Leu Glu Gly Arg Ala Phe Lys Gly Met  
165 170 175

Leu Lys Leu Thr Ala Glu Tyr Lys Xaa His Leu Arg Arg Cys Leu Pro  
180 185 190

Phe Gly Asn Gly Val Gly Val Gly Arg Ala Gln Ser Gly Val Ala Gly  
195 200 205

Asp Phe Lys Asn Ile Gly Lys Val Gln  
210 215

<210> 1035  
<211> 507  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 1035  
atgatgatgc acgcttctgt ccaaagtcgt ttgcacccga tactttatgt tttgattttc 60  
tttgccggtt ttttgaccgc gcaaactctgg ttcaatcaga aagcctatac tgaagagctg 120  
cctccgcttc tgtccgcatt gtccgccgtc gcgctgggtg ggctggcgtg ggcgttcgtg 180  
tcggtgcgtt caaaggctaa ggcagaaaag ttctaccgcg aaaaaatgat acagaacgaa 240  
agcatacacc ccgtcctgca cgcttctttg caacacttgg aacacaagcc gcaaatgctc 300  
gccctgctgg tcaaaaacca cggcaaaggc atggcggaac aggtcaggtt caaggcggaa 360  
gtgctgcccg acgacgaaga cgcgcgcacg attgccgccg agttggcaaa aatggatatg 420  
ttcgcattgg ggacggacgc ggtcgcctcg ggcgaaacct atgggcgcgt gttcgccgat 480  
attttcgagt tgtcggcggc tttggaa 507

<210> 1036  
<211> 169  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 1036  
Met Met Met His Ala Ser Val Gln Ser Arg Phe Ala Pro Ile Leu Tyr  
1 5 10 15

Val Leu Ile Phe Phe Ala Gly Phe Leu Thr Ala Gln Ile Trp Phe Asn  
20 25 30

Gln Lys Ala Tyr Thr Glu Glu Leu Pro Pro Leu Leu Ser Ala Leu Ser  
35 40 45

Ala Val Ala Leu Val Trp Leu Ala Trp Ala Phe Val Ser Val Arg Ser  
50 55 60

Lys Ala Lys Ala Glu Lys Phe Tyr Arg Glu Lys Met Ile Gln Asn Glu  
65 70 75 80

Ser Ile His Pro Val Leu His Ala Ser Leu Gln His Leu Glu His Lys  
85 90 95

Pro Gln Met Leu Ala Leu Leu Val Lys Asn His Gly Lys Gly Met Ala  
100 105 110

Glu Gln Val Arg Phe Lys Ala Glu Val Leu Pro Asp Asp Glu Asp Ala  
115 120 125

Arg Thr Ile Ala Ala Glu Leu Ala Lys Met Asp Met Phe Ala Leu Gly  
130 135 140

Thr Asp Ala Val Ala Ser Gly Glu Thr Tyr Gly Arg Val Phe Ala Asp  
145 150 155 160

Ile Phe Glu Leu Ser Ala Ala Leu Glu  
165

<210> 1037  
<211> 666  
<212> DNA  
<213> Neisseria meningitidis

<400> 1037  
atgatgatgc acgcttctgt ccaaagccgt ttgcgaccga tactttatgt tttgattttc 60  
tttgccgggtt ttttgaccgc gcaaatctgg ttcaatcaga aagcctatac tgaagagctg 120  
cctccgcttc tgtccgcatt gtccgccgtc gcgctgggtg ggctggcgtg ggcgttcgtg 180  
tcggcgcggtt caaaggccaa ggcggaagaa ttctaccgcg aaaaaatgat acagaacgaa 240  
agcatacacc ccgtcctgca cgctcttttg caacacttgg aacacaagcc gcaaatactc 300  
gccctgctgg tcaaaaacca cggcaaaggg atggcggaac aggtcagggt caaggcggaa 360  
gtgctgcccg acgacgaaga cgcgcgcacg attgccgccg agttggcaaa aatggatatg 420  
ttcgcatagg ggacggacgc ggtcgcctcg ggcgaaacct atggacgcgt gttcgccgat 480  
attttcgagt tgtcggcggc tttggaaggg cgcgcgttca aaggaatgtt gaaactgacg 540  
gcggaatata aaaacatctt cggcgatgcc tgccgttcgg aaacggcggt ggagttgggc 600  
gcactcaatc aggcgttgca ggagatttca aaaacatcgg aaaagtccaa acggatatatt 660  
tattga 666

<210> 1038  
<211> 221  
<212> PRT  
<213> Neisseria meningitidis

<400> 1038  
Met Met Met His Ala Ser Val Gln Ser Arg Phe Ala Pro Ile Leu Tyr  
1 5 10 15

Val Leu Ile Phe Phe Ala Gly Phe Leu Thr Ala Gln Ile Trp Phe Asn  
20 25 30



Gln Lys Ala Tyr Thr Glu Glu Leu Pro Pro Leu Leu Ser Ala Leu Ser  
           35                                  40                                  45  
 Ala Val Ala Leu Val Trp Leu Ala Trp Ala Phe Val Ser Ala Arg Ser  
           50                                  55                                  60  
 Lys Ala Lys Ala Glu Lys Phe Tyr Arg Glu Lys Met Ile Gln Asn Glu  
           65                                  70                                  75                                  80  
 Ser Ile His Pro Val Leu His Ala Ser Leu Gln His Leu Glu His Lys  
                                   85                                  90                                  95  
 Pro Gln Ile Leu Ala Leu Leu Val Lys Asn His Gly Lys Gly Met Ala  
                                   100                                  105                                  110  
 Glu Gln Val Arg Phe Lys Ala Glu Val Leu Pro Asp Asp Glu Asp Ala  
                                   115                                  120                                  125  
 Arg Thr Ile Ala Ala Glu Leu Ala Lys Met Asp Met Phe Ala Leu Gly  
           130                                  135                                  140  
 Thr Asp Ala Val Ala Ser Gly Glu Thr Tyr Gly Arg Val Phe Ala Asp  
           145                                  150                                  155                                  160  
 Ile Phe Glu Leu Ser Ala Ala Leu Glu Gly Arg Ala Phe Lys Gly Met  
                                   165                                  170                                  175  
 Leu Lys Leu Thr Ala Glu Tyr Lys Asn Ile Phe Gly Asp Ala Cys Arg  
                                   180                                  185                                  190  
 Ser Glu Thr Ala Leu Glu Leu Gly Ala Leu Asn Gln Ala Leu Gln Glu  
                                   195                                  200                                  205  
 Ile Ser Lys Thr Ser Glu Lys Ser Lys Arg Ile Phe Tyr  
           210                                  215                                  220

<210> 1039

<211> 666

<212> DNA

<213> Neisseria meningitidis

<400> 1039

atgatgatgc acgcttctgt ccaaagccgt ttcgcaccga tactttatgt tttgattttc 60  
 tttgccggtt ttttgaccgc gcaaactctgg ttcaatcaga aagcctatac tgaagagctg 120  
 cctccgcttc tgtccgcatt gtccgccgtc gcgctggtgt ggctggcgtg ggcgttcgtg 180  
 tcggcgcggtt caaaggctaa ggcgaaaaag ttctaccgcg aaaaaatgat acagaacgaa 240  
 agcatacacc ccgtcctgca cgcttctttg caacacttgg aacacaagcc gcaaatgctc 300  
 gccctgctgg tcaaaaacca cggcaaaggg atggcggaac aggtcaggtt caaggcgga 360  
 gtgctgcccg acgacgaaga cgcgcgcacg attgccgccg agttggcaaa aatggatatg 420  
 tttgcattgg ggacggacgc ggtcgctcgc ggcgaaacct atggacgcgt gttcgccgat 480  
 attttcagat tgtcggcggc tttggaaggc cgcgcgttca aaggaatgtt gaaactgacg 540  
 gcggaatata aaaacatctt cggcgatgcc tgccgttcgc aaacggcggtt ggagttgggc 600  
 gcgctcaatc aggcgttgca ggagatttca aaaacatcgc aaaagtccaa acggatatatt 660  
 tattga 666

<210> 1040  
 <211> 221  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1040  
 Met Met Met His Ala Ser Val Gln Ser Arg Phe Ala Pro Ile Leu Tyr  
     1                    5                    10                    15  
 Val Leu Ile Phe Phe Ala Gly Phe Leu Thr Ala Gln Ile Trp Phe Asn  
             20                    25                    30  
 Gln Lys Ala Tyr Thr Glu Glu Leu Pro Pro Leu Leu Ser Ala Leu Ser  
             35                    40                    45  
 Ala Val Ala Leu Val Trp Leu Ala Trp Ala Phe Val Ser Ala Arg Ser  
     50                    55                    60  
 Lys Ala Lys Ala Glu Lys Phe Tyr Arg Glu Lys Met Ile Gln Asn Glu  
     65                    70                    75                    80  
 Ser Ile His Pro Val Leu His Ala Ser Leu Gln His Leu Glu His Lys  
             85                    90                    95  
 Pro Gln Met Leu Ala Leu Leu Val Lys Asn His Gly Lys Gly Met Ala  
             100                    105                    110  
 Glu Gln Val Arg Phe Lys Ala Glu Val Leu Pro Asp Asp Glu Asp Ala  
             115                    120                    125  
 Arg Thr Ile Ala Ala Glu Leu Ala Lys Met Asp Met Phe Ala Leu Gly  
     130                    135                    140  
 Thr Asp Ala Val Ala Ser Gly Glu Thr Tyr Gly Arg Val Phe Ala Asp  
     145                    150                    155                    160  
 Ile Phe Glu Leu Ser Ala Ala Leu Glu Gly Arg Ala Phe Lys Gly Met  
             165                    170                    175  
 Leu Lys Leu Thr Ala Glu Tyr Lys Asn Ile Phe Gly Asp Ala Cys Arg  
             180                    185                    190  
 Ser Glu Thr Ala Leu Glu Leu Gly Ala Leu Asn Gln Ala Leu Gln Glu  
     195                    200                    205  
 Ile Ser Lys Thr Ser Glu Lys Ser Lys Arg Ile Phe Tyr  
     210                    215                    220

<210> 1041  
 <211> 582  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1041  
 atgggtgcgg gtgtagtatt cgttgtcttt cagccgttct tcagcctggt tcgagcggtg 60  
 ttcgagggcg gagtcggtat agtcgagggg ggcacgatg ccgctgaatg cgacttcttg 120

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tccgaggaat ttaccggtat ccggatcggt gatgttttta ttgattcggt aggtcagata 180
acggcccggg tctttcaggc ctttggtgta aaccctggcg cctttggtgt acagcagcct 240
gccttccggg cccgagagca ggcgcgggcg ggcagcggtt tctttgcggg aaacgatttg 300
cggggtgctgc ataaagacgc ggtagaagtt gacatcgatg gcgggaatac cgtatccgga 360
cacttcctta tccggaactga ttttgacgac ggggatgccg tctgtctgtt ccaagccgag 420
gcgcggttcg ccgccaacgt agcgcaacac caatacctgg cccggataaa tcaggtcggg 480
attgtggatt tgatcccggt tcgcgcccca caggggggga ccattgccac gggctgtaca 540
ggtatttgcc cgaaataccc cacagggtgt cgccctgttt ga 582

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<210> 1042

<211> 193

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1042

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Met Gly Ala Gly Val Val Phe Val Val Phe Gln Pro Phe Phe Ser Leu
  1              5              10              15

```

```

Phe Arg Ala Leu Phe Glu Gly Gly Val Gly Ile Val Glu Gly Ala His
      20              25              30

```

```

Asp Ala Ala Glu Cys Asp Phe Leu Ser Glu Glu Phe Thr Arg Ile Arg
      35              40              45

```

```

Ile Gly Asp Val Phe Ile Asp Ser Val Gly Gln Ile Thr Ala Arg Phe
      50              55              60

```

```

Phe Gln Ala Phe Gly Val Asn Pro Gly Ala Phe Gly Val Gln Gln Pro
      65              70              75              80

```

```

Ala Phe Arg Ala Arg Glu Gln Ala Arg Arg Gly Ser Gly Phe Phe Ala
      85              90              95

```

```

Gly Asn Asp Leu Arg Val Leu His Lys Asp Ala Val Glu Val Asp Ile
      100             105             110

```

```

Asp Gly Gly Asn Thr Val Ser Gly His Phe Leu Ile Arg Thr Asp Phe
      115             120             125

```

```

Asp Asp Gly Asp Ala Val Cys Leu Phe Gln Ala Glu Ala Arg Phe Ala
      130             135             140

```

```

Ala Asn Val Ala Gln His Gln Tyr Leu Ala Arg Ile Asn Gln Val Gly
      145             150             155             160

```

```

Ile Val Asp Leu Ile Pro Val Arg Ala Pro Gln Gly Gly Thr Ile Ala
      165             170             175

```

```

Thr Gly Cys Thr Gly Ile Cys Pro Lys Tyr Pro Thr Gly Cys Arg Pro
      180             185             190

```

Val

<210> 1043

<211> 513  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1043  
 atgggtgcgg gtatggtatt cgttgtcttt cggccggttct ccagcctgtt tcgagcggtg 60  
 ttcgaggaca gagtcggtat agtcgagggg ggcgacgatg ccgctgaatg cgacttcctg 120  
 cccgaggaat ttaccctgat ccggatcggg gatgttttta ttgattcggg aggtcaggta 180  
 gcggcccggc tctttcaggc ctttggtgta aaccctgggt cctttggtgt acagcagcct 240  
 gccttccggg cccgagwrcs sgcgcggygc ggcagcggtt tctttgcggg aaacgatttg 300  
 cggatgccgc ataaagatgc ggtagaagt gacatcgatg gcgggaatac cgtatccgga 360  
 cacttcctta tccggactca ttttgacgac ggggatgccg tctgtctgtt ccaagccgag 420  
 gcgcggttcg ccgtcaacgt ggcgcaacac caatacctgg tccggataaa tcaggtcggg 480  
 attgtggatt tgatcccggg tcgcgtycca cag 513

<210> 1044  
 <211> 171  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1044  
 Met Gly Ala Gly Met Val Phe Val Val Phe Arg Pro Phe Ser Ser Leu  
 1 5 10 15  
 Phe Arg Ala Leu Phe Glu Asp Arg Val Gly Ile Val Glu Gly Ala His  
 20 25 30  
 Asp Ala Ala Glu Cys Asp Phe Leu Pro Glu Glu Phe Thr Arg Ile Arg  
 35 40 45  
 Ile Gly Asp Val Phe Ile Asp Ser Val Gly Gln Val Ala Ala Arg Leu  
 50 55 60  
 Phe Gln Ala Phe Gly Val Asn Pro Gly Ala Phe Gly Val Gln Gln Pro  
 65 70 75 80  
 Ala Phe Arg Ala Arg Xaa Xaa Ala Arg Xaa Gly Ser Gly Phe Phe Ala  
 85 90 95  
 Gly Asn Asp Leu Arg Met Pro His Lys Asp Ala Val Glu Val Asp Ile  
 100 105 110  
 Asp Gly Gly Asn Thr Val Ser Gly His Phe Leu Ile Arg Thr His Phe  
 115 120 125  
 Asp Asp Gly Asp Ala Val Cys Leu Phe Gln Ala Glu Ala Arg Phe Ala  
 130 135 140  
 Val Asn Val Ala Gln His Gln Tyr Leu Val Arg Ile Asn Gln Val Gly  
 145 150 155 160  
 Ile Val Asp Leu Ile Pro Val Arg Val Pro Gln  
 165 170

<210> 1045

<211> 581  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1045  
 atgggtgcgg gtatggtatt cgttgtcttt cggccgttct ccagcctggt tcgagcgttg 60  
 ttcgaggaca gagtcggtat agtcgaggga gcgcacgatg ccgctgaatg cgacttcctg 120  
 cccgaggaat ttaccogtat ccggatcggg gatgttttta ttgattcggg aggtcaggta 180  
 gcggccccgc tctttcaggc ctttggtgta aaccctggtg cctttggtgt acagcagcct 240  
 gccttcgggg cccgagagca ggcgcgggcg gcgagcgggt tctttgcggg aaacgatttg 300  
 cgggtgccgc ataaagatgc ggtagaagtt gacatcgatg gcggaatac cgtatccgga 360  
 cacttcctta tccggactca ttttgacgac ggggatgccg tctgtctggt ccaagccgag 420  
 gcgcgggttc ccgtaacgt ggcgcaacac caatacctgg tccagataaa tcaggtcggg 480  
 attgtggatt tgatcccggt tcgctgccca caggcgcccc cattgccacg ggctgtacag 540  
 gtatttgccc gaaatgcccc acagggtgtc gccctgtttg a 581

<210> 1046  
 <211> 193  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1046  
 Met Gly Ala Gly Met Val Phe Val Val Phe Arg Pro Phe Ser Ser Leu  
 1 5 10 15  
 Phe Arg Ala Leu Phe Glu Asp Arg Val Gly Ile Val Glu Gly Ala His  
 20 25 30  
 Asp Ala Ala Glu Cys Asp Phe Leu Pro Glu Glu Phe Thr Arg Ile Arg  
 35 40 45  
 Ile Gly Asp Val Phe Ile Asp Ser Val Gly Gln Val Ala Ala Arg Leu  
 50 55 60  
 Phe Gln Ala Phe Gly Val Asn Pro Gly Ala Phe Gly Val Gln Gln Pro  
 65 70 75 80  
 Ala Phe Arg Ala Arg Glu Gln Ala Arg Arg Gly Ser Gly Phe Phe Ala  
 85 90 95  
 Gly Asn Asp Leu Arg Val Pro His Lys Asp Ala Val Glu Val Asp Ile  
 100 105 110  
 Asp Gly Gly Asn Thr Val Ser Gly His Phe Leu Ile Arg Thr His Phe  
 115 120 125  
 Asp Asp Gly Asp Ala Val Cys Leu Phe Gln Ala Glu Ala Arg Phe Ala  
 130 135 140  
 Val Asn Val Ala Gln His Gln Tyr Leu Val Gln Ile Asn Gln Val Gly  
 145 150 155 160  
 Ile Val Asp Leu Ile Pro Val Arg Val Pro Gln Ala Ala Xaa Ile Ala  
 165 170 175  
 Thr Gly Cys Thr Gly Ile Cys Pro Lys Cys Pro Thr Gly Cys Arg Pro

Val

&lt;210&gt; 1047

&lt;211&gt; 714

&lt;212&gt; DNA

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 1047

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atggagcttg ggcataatcgt attccttgtg ctttgcgcg cgttcagacgg cctttttact 60
ttccagacat tccgccagcc cgcgttcgcg caagatacag ctcgggcatt cgcggcagcc 120
gccgacgata cccttgtagc aggtgtgggt ctgttcgcg atgtagtcca acacgcccac 180
ttcgtccgcc aacgcccacg tttgcgcctt ggtcaggtag atcagcggcg tgtggatttg 240
aaaatcgtag tccatcgcca gattaagggt aacggttcac gatttgacga acacgcgcgc 300
gcagtcggga tagcccgaaa aatcgggttc gcacacgccc gcgatgatgt gccggatacc 360
ctgccctttg gcaaaaatgg cggcgtaaaag caggaaaagc gcgttacgcc cgtccacaaa 420
ggtattggga acgcccgttg cggcggtttc gatggcgcg gtttcgatgg cggcggtttc 480
gtccatcagg gcgttgtgcg taatctgccg catcaggctc aaatcgagta cggtttgact 540
gacacccaaa tcctgcgcga tccactctgc gcgttcacgc tcgacggcat ggcgttgccc 600
gtatcggaag gtgatggctt ggacgttttc gcgcccgtag gtttggattg cctgaatcag 660
gcaggtggtc gaatcctgac cgcccgagaa gatgaccaag gctttttggt ttga 714

```

&lt;210&gt; 1048

&lt;211&gt; 237

&lt;212&gt; PRT

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 1048

```

Met Glu Leu Gly His Ile Val Phe Leu Val Leu Cys Ala Arg Ser Asp
  1              5              10              15

Gly Leu Phe Thr Phe Gln Thr Phe Arg Gln Pro Ala Phe Ala Gln Asp
      20              25              30

Thr Ala Arg Ala Phe Ala Ala Ala Ala Asp Asp Thr Leu Val Ala Gly
      35              40              45

Val Gly Leu Phe Ala Asp Val Val Gln His Ala His Phe Val Arg Gln
      50              55              60

Arg Pro Arg Leu Arg Leu Gly Gln Val His Gln Arg Arg Val Asp Leu
      65              70              75              80

Lys Ile Val Val His Arg Gln Ile Lys Gly Asn Val His Gly Phe Asp
      85              90              95

Glu His Ala Ala Ala Val Gly Ile Ala Arg Lys Ile Gly Phe Ala His
      100             105             110

Ala Arg Asp Asp Val Pro Asp Thr Leu Pro Phe Gly Lys Asn Gly Gly
      115             120             125

Val Lys Gln Glu Lys Arg Val Thr Pro Val His Lys Gly Ile Gly Asn

```

130	135	140
Ala Val Val Gly Gly Phe Asp Gly Gly Gly Phe Asp Gly Gly Gly Phe		
145	150	155 160
Val His Gln Gly Val Val Arg Asn Leu Pro His Gln Ala Gln Ile Glu		
	165	170 175
Tyr Gly Leu Thr Asp Thr Gln Ile Leu Arg Asp Pro Leu Cys Ala Phe		
	180	185 190
Gln Leu Asp Gly Met Ala Leu Pro Val Ser Glu Gly Asp Gly Leu Asp		
	195	200 205
Val Phe Ala Pro Val Gly Leu Asp Cys Leu Asn Gln Ala Gly Gly Arg		
	210	215 220
Ile Leu Thr Ala Arg Glu Asp Asp Gln Gly Phe Leu Val		
225	230	235

<210> 1049  
 <211> 699  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1049  
 atggagcttg ggcataatcgt attccttatg gtttgcgcggt gttcagacgg cctttttact 60  
 ttccagatat tccgccagcc cgcgttcgcg caagatacag ctccggcatt cgcggcagcc 120  
 gccgacgatg ccgttatagc aggtgtgggt ttgctcgcg atatagtcca gcacgccc at 180  
 ttcgtccgcc aacgcccacg tttgcgccctt ggtcagatac atcagcggcg tgtggatttg 240  
 aaaatcatag tccatcgcca aattaagggt aacgttcacg gatttgacaa acacgtcgcg 300  
 gcagtcggga tagccggaga agtcggtttc gcacacgccc gcgatgatgt gccgtatccc 360  
 ctgccctttg gcgtaaatcg cggcatagag caggaaaagc gcgttcgcg cgtctacaaa 420  
 ggtattcgga acgccgtttt cggcagtttc gatggcggcg gtgtcgcca tcagggcatt 480  
 gtgcgtaatc tgccgcatca ggctcaagtc gagtacggtt tgtttgacgc ccaaatacctg 540  
 cgcaatccag cgggcacggt ccagctcgac ggcattggcg tgcccgtatt ggaaagta at 600  
 ggcttgacg ttttcgcgcc cgtagggttg gattgcctga atcaggcagg tggtcgaatc 660  
 ctgaccgccc gaaaagatga ccaaggcttg ttggtttga 699

<210> 1050  
 <211> 232  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1050  
 Met Glu Leu Gly His Ile Val Phe Leu Met Val Cys Ala Cys Ser Asp  
 1 5 10 15  
 Gly Leu Phe Thr Phe Gln Ile Phe Arg Gln Pro Ala Phe Ala Gln Asp  
 20 25 30  
 Thr Ala Arg Ala Phe Ala Ala Ala Asp Asp Ala Val Ile Ala Gly  
 35 40 45  
 Val Gly Leu Leu Ala Asp Ile Val Gln His Ala His Phe Val Arg Gln

50	55	60
Arg Pro Arg Leu Arg Leu Gly Gln Ile His Gln Arg Arg Val Asp Leu		
65	70	75 80
Lys Ile Ile Val His Arg Gln Ile Lys Gly Asn Val His Arg Phe Asp		
	85	90 95
Lys His Val Ala Ala Val Gly Ile Ala Gly Glu Val Gly Phe Ala His		
	100	105 110
Ala Arg Asp Asp Val Pro Tyr Pro Leu Pro Phe Gly Val Asn Arg Gly		
	115	120 125
Ile Glu Gln Glu Lys Arg Val Ala Ala Val Tyr Lys Gly Ile Arg Asn		
	130	135 140
Ala Val Phe Gly Ser Phe Asp Gly Gly Gly Val Val His Gln Gly Ile		
145	150	155 160
Val Arg Asn Leu Pro His Gln Ala Gln Val Glu Tyr Gly Leu Phe Asp		
	165	170 175
Ala Gln Ile Leu Arg Asn Pro Ala Gly Thr Phe Gln Leu Asp Gly Met		
	180	185 190
Ala Leu Pro Val Leu Glu Ser Asn Gly Leu Asp Val Phe Ala Pro Val		
	195	200 205
Gly Leu Asp Cys Leu Asn Gln Ala Gly Gly Arg Ile Leu Thr Ala Arg		
	210	215 220
Lys Asp Asp Gln Gly Leu Leu Val		
225	230	

<210> 1051

<211> 699

<212> DNA

<213> Neisseria meningitidis

<400> 1051

atggagcttg	ggcatatcgt	attccttatg	gtttgcgcgt	gttcagacgg	cctttttact	60
ttccagatat	tccgccagcc	cgcgttcgcg	caagatacag	ctcgggcatt	cgcggcagcc	120
gccgacgatg	ccgttatagc	aggtgtgggt	ttgctcgcgg	atatagtcca	gcgcgccc	180
ttcgtccgcc	aacgcccag	tttgccctt	ggtcagatac	atcagcggcg	tgtggatttg	240
aaaatcatag	tccatcgcca	gattaagggt	aacgttcatg	gatttgacaa	acacgtcacg	300
gcagtcggga	tagccggaga	agtcggtttc	gcacacgccc	gcgatgatgt	gccgtatccc	360
ctgccctttg	gcgtaaatcg	cggcatagag	caggaaaagc	gcgttgcggc	cgtctacaaa	420
ggtattcgga	acgccgtttt	cggcagtttc	gatggcggcg	gtgtcgtcca	tcagggcatt	480
gtgcgtaatc	tgccgcatca	ggctcaagtc	gagtacggtt	tgtttgacgc	ccaaatcctg	540
cgcaatccag	cgggcacggt	ccagctcgac	ggcatggcgt	tgcccgtatt	ggaaagtaat	600
ggcttgacg	ttttcgcgcc	cgtaggtttg	gattgcctga	atcaggcagg	tggtcgaatc	660
ctgaccgccc	gaaaagatga	ccaaggcttt	ttggtttg			699

<210> 1052



<211> 232  
<212> PRT  
<213> Neisseria meningitidis

<400> 1052

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Met Glu Leu Gly His Ile Val Phe Leu Met Val Cys Ala Cys Ser Asp
 1          5          10          15

Gly Leu Phe Thr Phe Gln Ile Phe Arg Gln Pro Ala Phe Ala Gln Asp
          20          25          30

Thr Ala Arg Ala Phe Ala Ala Ala Ala Asp Asp Ala Val Ile Ala Gly
          35          40          45

Val Gly Leu Leu Ala Asp Ile Val Gln Arg Ala His Phe Val Arg Gln
          50          55          60

Arg Pro Ser Leu Arg Leu Gly Gln Ile His Gln Arg Arg Val Asp Leu
          65          70          75          80

Lys Ile Ile Val His Arg Gln Ile Lys Gly Asn Val His Gly Phe Asp
          85          90          95

Lys His Val Thr Ala Val Gly Ile Ala Gly Glu Val Gly Phe Ala His
          100          105          110

Ala Arg Asp Asp Val Pro Tyr Pro Leu Pro Phe Gly Val Asn Arg Gly
          115          120          125

Ile Glu Gln Glu Lys Arg Val Ala Ala Val Tyr Lys Gly Ile Arg Asn
          130          135          140

Ala Val Phe Gly Ser Phe Asp Gly Gly Gly Val Val His Gln Gly Ile
          145          150          155          160

Val Arg Asn Leu Pro His Gln Ala Gln Val Glu Tyr Gly Leu Phe Asp
          165          170          175

Ala Gln Ile Leu Arg Asn Pro Ala Gly Thr Phe Gln Leu Asp Gly Met
          180          185          190

Ala Leu Pro Val Leu Glu Ser Asn Gly Leu Asp Val Phe Ala Pro Val
          195          200          205

Gly Leu Asp Cys Leu Asn Gln Ala Gly Gly Arg Ile Leu Thr Ala Arg
          210          215          220

Lys Asp Asp Gln Gly Phe Leu Val
          225          230
```

<210> 1053  
<211> 549  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 1053

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atggcacggtt taaccgtaca caccctcgaa accgcccccg aagccgccaa accgcgcgta 60
gaggccgtac ccaaaaacaa cggttttatt cccaacctca tcggcggtatt ggcaaacgcc 120
cccgaagctt tggcgtttta ccaagaagtc ggcaagctca acgccgccaa cagcctgacc 180
gccggcgaag tcgaagtgat ccggtatcat gccgtccgca ccaaccaatg cagcttctgc 240
gtggcagggc acaccaaact cgcaaccctg aaaaaactcc tgtccgagca atccctcaat 300
gccgcccgcg ctttggcggc aggtaaatct gacgatgcca aactcggcgc gcttgccgcc 360
ttcacccaag ccgtaatggc gaaaaaaggc gcagtatccg acgacgaact caacgccttc 420
ctcgaagcgg gctacaaccg gcagcaggca gtcgaagtcg taatgggcgt agccttggca 480
actttgtgca actacgccaa caacctcgcc caaacccgaaa tcaaccccaa attgcaggca 540
tacgcctaa 549
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<210> 1054

<211> 182

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1054

```
Met Ala Arg Leu Thr Val His Thr Leu Glu Thr Ala Pro Glu Ala Ala
  1              5              10              15

Lys Pro Arg Val Glu Ala Val Pro Lys Asn Asn Gly Phe Ile Pro Asn
          20          25          30

Leu Ile Gly Val Leu Ala Asn Ala Pro Glu Ala Leu Ala Phe Tyr Gln
      35          40          45

Glu Val Gly Lys Leu Asn Ala Ala Asn Ser Leu Thr Ala Gly Glu Val
      50          55          60

Glu Val Ile Arg Ile Ile Ala Val Arg Thr Asn Gln Cys Ser Phe Cys
      65          70          75          80

Val Ala Gly His Thr Lys Leu Ala Thr Leu Lys Lys Leu Leu Ser Glu
          85          90          95

Gln Ser Leu Asn Ala Ala Arg Ala Leu Ala Ala Gly Lys Ser Asp Asp
      100          105          110

Ala Lys Leu Gly Ala Leu Ala Ala Phe Thr Gln Ala Val Met Ala Lys
      115          120          125

Lys Gly Ala Val Ser Asp Asp Glu Leu Asn Ala Phe Leu Glu Ala Gly
      130          135          140

Tyr Asn Arg Gln Gln Ala Val Glu Val Val Met Gly Val Ala Leu Ala
      145          150          155          160

Thr Leu Cys Asn Tyr Ala Asn Asn Leu Ala Gln Thr Glu Ile Asn Pro
          165          170          175

Lys Leu Gln Ala Tyr Ala
      180
```

<210> 1055

<211> 233  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 1055  
gcagcaggcg aatttgacga tgccaaactc ggcgcgctcg ccgccttcac ccaagccgta 60  
atggcgaaaa aaggcgcggt atccgacgag gaactcaaag catttttcga tgcgggctac 120  
aaccagcagc aggcagtcga agtcgtgatg ggcgtaasyt ggcaaccctg tgcaactacg 180  
tcaacaacct cggacaaacc gaaatcaacc ccgaattgca ggcttacgcc tga 233

<210> 1056  
<211> 77  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 1056  
Ala Ala Gly Glu Phe Asp Asp Ala Lys Leu Gly Ala Leu Ala Ala Phe  
1 5 10 15  
Thr Ala Val Met Ala Lys Lys Gly Ala Val Ser Asp Glu Glu Leu Lys  
20 25 30  
Ala Phe Phe Asp Ala Gly Tyr Asn Gln Gln Gln Ala Val Glu Val Val  
35 40 45  
Met Gly Val Xaa Leu Ala Thr Leu Cys Asn Tyr Val Asn Asn Leu Gly  
50 55 60  
Gln Thr Glu Ile Asn Pro Glu Leu Gln Ala Tyr Ala Xaa  
65 70 75

<210> 1057  
<211> 549  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 1057  
atggcacgtt taaccgtaca caccctcgaa accgcccccg aagccgccaa agcgcgcgtc 60  
gaggcggtac ttcaaaacaa cggttttata cccaacctta tcggcggtatt atcaaacgcc 120  
cccgaagcct tggcgtttta ccaagaagtc ggcaagctca acgccgccaa cagcctgacc 180  
gccggcgaag tcgaagtaat ccagattatt gccgcccga ccaaccaatg cggcttctgc 240  
gtggcagggc acaccaaact cgcaaccctg aaaaaactcc tttccgaaca atccgtcaaa 300  
gccgcgcgcg ctttggcggc aggcgaattt gacgatgcta aactcggcgc gctcgccgcc 360  
tttaccceaag ccgtaatggc aaaaaaaggc gcggtatccg acgaggaact caaagcattt 420  
tttgatgcgg gctacaacca gcagcaggca gtcgaagtcg tgatgggcgt agccttggca 480  
actttgtgca actacgtcaa caacctcgga caaacccgaa tcaaccccca attgcaggct 540  
tacgcctga 549

<210> 1058  
<211> 182  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 1058

Met Ala Arg Leu Thr Val His Thr Leu Glu Thr Ala Pro Glu Ala Ala  
1 5 10 15

Lys Ala Arg Val Glu Ala Val Leu Gln Asn Asn Gly Phe Ile Pro Asn  
20 25 30

Leu Ile Gly Val Leu Ser Asn Ala Pro Glu Ala Leu Ala Phe Tyr Gln  
35 40 45

Glu Val Gly Lys Leu Asn Ala Ala Asn Ser Leu Thr Ala Gly Glu Val  
50 55 60

Glu Val Ile Gln Ile Ile Ala Ala Arg Thr Asn Gln Cys Gly Phe Cys  
65 70 75 80

Val Ala Gly His Thr Lys Leu Ala Thr Leu Lys Lys Leu Leu Ser Glu  
85 90 95

Gln Ser Val Lys Ala Ala Arg Ala Leu Ala Ala Gly Glu Phe Asp Asp  
100 105 110

Ala Lys Leu Gly Ala Leu Ala Ala Phe Thr Gln Ala Val Met Ala Lys  
115 120 125

Lys Gly Ala Val Ser Asp Glu Glu Leu Lys Ala Phe Phe Asp Ala Gly  
130 135 140

Tyr Asn Gln Gln Gln Ala Val Glu Val Val Met Gly Val Ala Leu Ala  
145 150 155 160

Thr Leu Cys Asn Tyr Val Asn Asn Leu Gly Gln Thr Glu Ile Asn Pro  
165 170 175

Glu Leu Gln Ala Tyr Ala  
180

<210> 1059

<211> 687

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1059

```

ttgactttaa cccgaaaaac ccttttcttc ctcaccgccg cgttcggcac acactccctt 60
cagacggcat ccgccgacgc agtgggtcaag ccggaaaaac tgcacgcctc cgccaaccgc 120
agctacaaag tcgccgaatt caccgaaacc ggcaacgcct cgtgggtacgg cggcagggtt 180
cacgggcgca aaacttccgg cggagaccgc tacgatatga acgcctttac cgccgcccac 240
aaaaccctgc ccattccccag ccatgtgcgc gtaaccaaca ccaaaaaacgg caaaagcgtc 300
atcgctccgcg tcaacgaccg cggccccttc cacggcaacc gcatcatcga cgtatccaaa 360
gccgccgcgcg aaaaattggg ctttgtcagc caagggacgg cacacgtcaa aatcgaacaa 420
atcgctcccg gccaatccgc accggttgcc gaaaacaaag acatctttat cgacttgaaa 480
tctttcggtg cggaacacga agcacaagcc tatctgaacc aagccgccca aaatttcgcc 540
gcttcgtcat caagcccga cctctcggtt gaaaaacgcc gttacgaata cgttgtcaaa 600
atgggcccgt ttgcctcgca ggaacgcgcc gccgaagccg aagcgcaggc acgcggtatg 660
gttcggggcg tactgacctc cggttga 687

```

<210> 1060  
<211> 228  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 1060  
Leu Thr Leu Thr Arg Lys Thr Leu Phe Leu Leu Thr Ala Ala Phe Gly  
1 5 10 15  
Thr His Ser Leu Gln Thr Ala Ser Ala Asp Ala Val Val Lys Pro Glu  
20 25 30  
Lys Leu His Ala Ser Ala Asn Arg Ser Tyr Lys Val Ala Glu Phe Thr  
35 40 45  
Gln Thr Gly Asn Ala Ser Trp Tyr Gly Gly Arg Phe His Gly Arg Lys  
50 55 60  
Thr Ser Gly Gly Asp Arg Tyr Asp Met Asn Ala Phe Thr Ala Ala His  
65 70 75 80  
Lys Thr Leu Pro Ile Pro Ser His Val Arg Val Thr Asn Thr Lys Asn  
85 90 95  
Gly Lys Ser Val Ile Val Arg Val Asn Asp Arg Gly Pro Phe His Gly  
100 105 110  
Asn Arg Ile Ile Asp Val Ser Lys Ala Ala Ala Gln Lys Leu Gly Phe  
115 120 125  
Val Ser Gln Gly Thr Ala His Val Lys Ile Glu Gln Ile Val Pro Gly  
130 135 140  
Gln Ser Ala Pro Val Ala Glu Asn Lys Asp Ile Phe Ile Asp Leu Lys  
145 150 155 160  
Ser Phe Gly Thr Glu His Glu Ala Gln Ala Tyr Leu Asn Gln Ala Ala  
165 170 175  
Gln Asn Phe Ala Ala Ser Ser Ser Ser Pro Asn Leu Ser Val Glu Lys  
180 185 190  
Arg Arg Tyr Glu Tyr Val Val Lys Met Gly Pro Phe Ala Ser Gln Glu  
195 200 205  
Arg Ala Ala Glu Ala Glu Ala Gln Ala Arg Gly Met Val Arg Ala Val  
210 215 220  
Leu Thr Ser Gly  
225

<210> 1061  
<211> 720  
<212> DNA  
<213> Neisseria meningitidis

<400> 1061

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ttgactttaa cccgaaaaac ccttttcctt ctcacgcgcg cattcggcac acactccctt 60
cagacggcat ccgccgacgc agtgggtcaag gcagaaaaac tgcacgcctc cgccaaccgc 120
agctacaaag tcgccggaaa acgctacacg ccgaaaaacc aagtcgccga attcacgcaa 180
accggcaacg cctcgtggta cggcggcagg ttacacgggc gcaaaacttc cggcggagaa 240
cgatacgata tgaacgcctt taccgcccgc caaaaaacc tgcccatccc cagctatgtg 300
cgcgtaacca ataccaaaaa cggcaaaagc gtcacgtcc gcgtcaacga ccgcggcccc 360
ttccacggca accgcatcat cgacgtatcc aaagccgcgc cgcaaaaatt gggctttgtc 420
aaccaaggga cggcacacgt caaaatcgaa caaatcgtcc cggggccaatc cgcaccggtt 480
gccgaaaaca aagacatctt tatcgacttg aaatctttcg gtacggaaca cgaagcacia 540
gcctatctga accaagccgc ccaaaacttc gccgtttcgt catcggttac gaacctctcg 600
gttgaaaaac gccgttacga atacgtcgtc aaaatgggac cgtttacctc gcaggaacgc 660
gccgccgaag ccgaagctca ggcgcgcggt atggttcggg cggatttgac cgccggctga 720
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<210> 1062

<211> 239

<212> PRT

<213> *Neisseria meningitidis*

<400> 1062

```
Leu Thr Leu Thr Arg Lys Thr Leu Phe Leu Leu Thr Ala Ala Phe Gly
 1             5             10             15

Thr His Ser Leu Gln Thr Ala Ser Ala Asp Ala Val Val Lys Ala Glu
      20             25             30

Lys Leu His Ala Ser Ala Asn Arg Ser Tyr Lys Val Ala Gly Lys Arg
      35             40             45

Tyr Thr Pro Lys Asn Gln Val Ala Glu Phe Thr Gln Thr Gly Asn Ala
      50             55             60

Ser Trp Tyr Gly Gly Arg Phe His Gly Arg Lys Thr Ser Gly Gly Glu
      65             70             75             80

Arg Tyr Asp Met Asn Ala Phe Thr Ala Ala His Lys Thr Leu Pro Ile
      85             90             95

Pro Ser Tyr Val Arg Val Thr Asn Thr Lys Asn Gly Lys Ser Val Ile
      100            105            110

Val Arg Val Asn Asp Arg Gly Pro Phe His Gly Asn Arg Ile Ile Asp
      115            120            125

Val Ser Lys Ala Ala Ala Gln Lys Leu Gly Phe Val Asn Gln Gly Thr
      130            135            140

Ala His Val Lys Ile Glu Gln Ile Val Pro Gly Gln Ser Ala Pro Val
      145            150            155            160

Ala Glu Asn Lys Asp Ile Phe Ile Asp Leu Lys Ser Phe Gly Thr Glu
      165            170            175

His Glu Ala Gln Ala Tyr Leu Asn Gln Ala Ala Gln Asn Phe Ala Val
      180            185            190
```

Ser Ser Ser Gly Thr Asn Leu Ser Val Glu Lys Arg Arg Tyr Glu Tyr  
 195 200 205

Val Val Lys Met Gly Pro Phe Thr Ser Gln Glu Arg Ala Ala Glu Ala  
 210 215 220

Glu Ala Gln Ala Arg Gly Met Val Arg Ala Val Leu Thr Ala Gly  
 225 230 235

<210> 1063

<211> 720

<212> DNA

<213> Neisseria meningitidis

<400> 1063

ttgacttttaa cccgaaaaac ccttttcttc ctcaccgcgcg cattcgggcat acatttccttt 60  
 cagacggcat ccgccgacgc agtgggcagg gcagaaaaac tgcacgcctc cgccaaccgc 120  
 agctacaaag tcgccggaaa acgctacacg ccgaaaaacc aagtcgccga attcacgcaa 180  
 accggcaacg cctcgtggta cggcggcagg tttcacgggc gcaaaacttc cggcggagaa 240  
 cgatacgata tgaacgcctt taccgcgcgc cacaaaaccc tgcccatccc cagctatgtg 300  
 cgcgtaacca ataccaaaaa cggcaaaagc gtcatcgctc gcgtcaacga ccgcggcccc 360  
 ttccacggca accgcatcat cgacgtatcc aaagccgcgc cgcaaaaatt gggctttgtc 420  
 aaccaaggga cggcgcacgt caaaatcgaa caaatcgctc cgggccaatc cgcaccggtt 480  
 gccgaaaaca aagacatctt catcgacttg aaatctttcg gtacggaaca cgaagcacia 540  
 gcctatctga accaagccgc ccaaaacctg gcttcacgcg catcaaaccc gaacctctcg 600  
 gttgaaaaac gccgttacga atacgtcgtc aaaatgggac cgtttgccct gcaggaacgc 660  
 gccgccgagg ccgaagctca ggcgcgcggt atggttcggg cgggtattaac cgccggttga 720

<210> 1064

<211> 239

<212> PRT

<213> Neisseria meningitidis

<400> 1064

Leu Thr Leu Thr Arg Lys Thr Leu Phe Leu Leu Thr Ala Ala Phe Gly  
 1 5 10 15

Ile His Ser Phe Gln Thr Ala Ser Ala Asp Ala Val Val Arg Ala Glu  
 20 25 30

Lys Leu His Ala Ser Ala Asn Arg Ser Tyr Lys Val Ala Gly Lys Arg  
 35 40 45

Tyr Thr Pro Lys Asn Gln Val Ala Glu Phe Thr Gln Thr Gly Asn Ala  
 50 55 60

Ser Trp Tyr Gly Gly Arg Phe His Gly Arg Lys Thr Ser Gly Gly Glu  
 65 70 75 80

Arg Tyr Asp Met Asn Ala Phe Thr Ala Ala His Lys Thr Leu Pro Ile  
 85 90 95

Pro Ser Tyr Val Arg Val Thr Asn Thr Lys Asn Gly Lys Ser Val Ile  
 100 105 110

Val Arg Val Asn Asp Arg Gly Pro Phe His Gly Asn Arg Ile Ile Asp  
115 120 125

Val Ser Lys Ala Ala Ala Gln Lys Leu Gly Phe Val Asn Gln Gly Thr  
130 135 140

Ala His Val Lys Ile Glu Gln Ile Val Pro Gly Gln Ser Ala Pro Val  
145 150 155 160

Ala Glu Asn Lys Asp Ile Phe Ile Asp Leu Lys Ser Phe Gly Thr Glu  
165 170 175

His Glu Ala Gln Ala Tyr Leu Asn Gln Ala Ala Gln Asn Leu Ala Ser  
180 185 190

Ser Ala Ser Asn Pro Asn Leu Ser Val Glu Lys Arg Arg Tyr Glu Tyr  
195 200 205

Val Val Lys Met Gly Pro Phe Ala Ser Gln Glu Arg Ala Ala Glu Ala  
210 215 220

Glu Ala Gln Ala Arg Gly Met Val Arg Ala Val Leu Thr Ala Gly  
225 230 235

<210> 1065  
<211> 371  
<212> DNA  
<213> Neisseria meningitidis

<400> 1065  
atgtcgggtga ttttgccgcc gacacgcgcc aacgctgctt tttcggcttg ggcgcggctg 60  
atgattttgt cttgtttgtt gtgttggtgt gcggcgtgtc cgtggtcgtc atcgccgtgt 120  
ccgtcgtggt gggcgagcgc gggggcggaa atgtcagca gtgcggttgc ggcggaggtc 180  
aagagaaggt gtttgatgtt catatttttg cctttgtaaa tcgtgggttg gaaaatgttg 240  
atattaataa ggtatcaaat aaccgtcagc cggcgggtcaa taccgcccga accataccgc 300  
gcgcctgagc ttcggcttcg gcggcgcgtt cctgcgaggt aaacggtccc attttgacga 360  
cgtattcgta a 371

<210> 1066  
<211> 123  
<212> PRT  
<213> Neisseria meningitidis

<400> 1066  
Met Ser Val Ile Leu Pro Pro Thr Arg Ala Asn Ala Ala Phe Ser Ala  
1 5 10 15

Trp Ala Arg Leu Met Ile Leu Ser Cys Leu Leu Cys Trp Cys Ala Ala  
20 25 30

Cys Pro Trp Ser Ser Ser Pro Cys Pro Ser Trp Trp Ala Ser Ala Gly  
35 40 45

Ala Glu Met Leu Ser Ser Ala Val Ala Ala Glu Val Lys Arg Arg Cys



50                      55                      60  
 Leu Met Phe Ile Xaa Phe Ala Phe Val Asn Arg Gly Leu Glu Asn Val  
 65                      70                      75                      80  
 Asp Ile Asn Lys Val Ser Asn Asn Arg Gln Pro Ala Val Asn Thr Ala  
                     85                      90                      95  
 Arg Thr Ile Pro Arg Ala Xaa Ala Ser Ala Ala Arg Ser Cys  
                     100                      105                      110  
 Glu Val Asn Gly Pro Ile Leu Thr Thr Tyr Ser  
                     115                      120

<210> 1067

<211> 361

<212> DNA

<213> *Neisseria meningitidis*

<400> 1067

atgtcgggtga ttttgccgcc gacacgcgcc aacgctgctt tttcggcttg ggcgcggctg 60  
 atgattttgt cttgtttgct gtgttggtgt gcggcggtgc cgtggtcgtc atcgccgtgt 120  
 ccgtcgtggt gggcgagtgc gggggcggaa atgccatca gtgcggttgc ggcggcggtc 180  
 aagagaaggc gtttgaagtt catttttgct cctgcgaagt atctggtggt gtttgaagga 240  
 cgtaaaggcg ggacatcaac cggcggttaa taccgcccga accataccgc gcgcctgagc 300  
 ttcggcctcg gcggcgcggt cctgcgaggg aaacggtccc attttgacga cgtattcgta 360  
 a

<210> 1068

<211> 119

<212> PRT

<213> *Neisseria meningitidis*

<400> 1068

Met Ser Val Ile Leu Pro Pro Thr Arg Ala Asn Ala Ala Phe Ser Ala  
 1                      5                      10                      15  
 Trp Ala Arg Leu Met Ile Leu Ser Cys Leu Leu Cys Trp Cys Ala Ala  
                     20                      25                      30  
 Cys Pro Trp Ser Ser Ser Pro Cys Pro Ser Trp Trp Ala Ser Ala Gly  
                     35                      40                      45  
 Ala Glu Met Pro Ile Ser Ala Val Ala Ala Ala Val Lys Arg Arg Arg  
                     50                      55                      60  
 Leu Lys Phe Ile Phe Ala Pro Ala Lys Tyr Leu Xaa Xaa Cys Leu Lys  
 65                      70                      75                      80  
 Asp Val Lys Ala Gly His Gln Pro Ala Val Asn Thr Ala Arg Thr Ile  
                     85                      90                      95  
 Pro Arg Ala Ala Ser Ala Ser Ala Ala Arg Ser Cys Glu Ala Asn Gly  
                     100                      105                      110

Pro Ile Leu Thr Thr Tyr Ser  
115

<210> 1069

<211> 347

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1069

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agttcagacg gcacgcgcgc cgacaatgcc caaacagaaa gcccatcatg accgcatcca 60
tgtacatcct tttgggtcttg gcactcatct ttgccaacgc ccccttcctc acgaccagac 120
tgttcggcgt ggccgcgctc aagcgcaaac atttcggaca ccacctgac gagctggcgg 180
caggtttcgc gctgaccgcc tctcttgccct acatcctcga atcccgtgcg ggagcggtac 240
acaatcaggg ttgggagttt tacgccaccg tcgtctgcct gtacctcatt ttcgccttcc 300
cgtgtttcgt gcggcggtat ttttggcaca cgcgcaacag ggaataa 347
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<210> 1070

<211> 116

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1070

```
Met Gln Phe Arg Arg His Arg Arg Arg Gln Cys Pro Asn Arg Lys Pro
  1           5           10           15
Ile Met Thr Ala Ser Met Tyr Ile Leu Leu Val Leu Ala Leu Ile Phe
      20           25           30
Ala Asn Ala Pro Phe Leu Thr Thr Arg Leu Phe Gly Val Ala Ala Leu
      35           40           45
Lys Arg Lys His Phe Gly His His Leu Ile Glu Leu Ala Ala Gly Phe
      50           55           60
Ala Leu Thr Ala Ser Leu Ala Tyr Ile Leu Glu Ser Arg Ala Gly Ala
      65           70           75           80
Val His Asn Gln Gly Trp Glu Phe Tyr Ala Thr Val Val Cys Leu Tyr
      85           90           95
Leu Ile Phe Ala Phe Pro Cys Phe Val Arg Arg Tyr Phe Trp His Thr
      100          105          110
Arg Asn Arg Glu
      115
```

<210> 1071

<211> 363

<212> DNA

<213> *Neisseria meningitidis*

<400> 1071

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atgccgttcc gcaacgcggt cagacggcat cgccgccgac aacgcctaaa cagaaagccc 60
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```

accatgaccg catccatgta catccttttg gtcttggcac tcattctttgc caacgcccc 120
ttcctcacga ccagactggt cggcgtggcc ractcaagc gcaaacattt cggacaccac 180
atgatcgagc tggcggcagg tttcgcgctg accgccgttc ttgcctacat cctsgaatcc 240
cgtgcaggat cggtagacga tcagggttgg gagttttatg ccacagtcgt ctgcctgtac 300
ctgatttttg cgtttccatg ttttgtgtgg cggattttt ggcacacgcg caacagggaa 360
tag 363

```

<210> 1072  
 <211> 120  
 <212> PRT  
 <213> *Neisseria meningitidis*

```

<400> 1072
Met Pro Phe Arg Asn Ala Phe Arg Arg His Arg Arg Arg Gln Arg Leu
 1           5           10          15

Asn Arg Lys Pro Thr Met Thr Ala Ser Met Tyr Ile Leu Leu Val Leu
          20          25          30

Ala Leu Ile Phe Ala Asn Ala Pro Phe Leu Thr Thr Arg Leu Phe Gly
          35          40          45

Val Ala Xaa Leu Lys Arg Lys His Phe Gly His His Met Ile Glu Leu
          50          55          60

Ala Ala Gly Phe Ala Leu Thr Ala Val Leu Ala Tyr Ile Leu Glu Ser
          65          70          75          80

Arg Ala Gly Ser Val His Asp Gln Gly Trp Glu Phe Tyr Ala Thr Val
          85          90          95

Val Cys Leu Tyr Leu Ile Phe Ala Phe Pro Cys Phe Val Trp Arg Tyr
          100         105         110

Phe Trp His Thr Arg Asn Arg Glu
          115         120

```

<210> 1073  
 <211> 363  
 <212> DNA  
 <213> *Neisseria meningitidis*

```

<400> 1073
atgccgttcc gcaatgcgtt cagacggcat cgccgcccgc aatgcccaaa cagaaagccc 60
gccatgaccg catccatgta catccttttg ctgcttgcc tgaatttttg caacgcccc 120
ttcctcacga ccaagctggt cggcatcgta ccgtcaagc gcaaacattt cggacaccac 180
ctgatcgagc tggcggcagg tttcgcgctg accgccgttc ttgcctacat cctcgaatcc 240
cgtgcgggag cggtagacga tcagggttgg gagttttacg ccaccgtcgt ctgcctgtac 300
ctgatttttg cgtttccctg tttcgtgtgg cggattttt ggcacacgcg caacagggaa 360
tag 363

```

<210> 1074  
 <211> 120  
 <212> PRT

<213> Neisseria meningitidis

<400> 1074

```
Met Pro Phe Arg Asn Ala Phe Arg Arg His Arg Arg Arg Gln Cys Pro
 1           5           10           15
Asn Arg Lys Pro Ala Met Thr Ala Ser Met Tyr Ile Leu Leu Leu Leu
          20           25           30
Ala Leu Ile Phe Ala Asn Ala Pro Phe Leu Thr Thr Lys Leu Phe Gly
          35           40           45
Ile Val Pro Leu Lys Arg Lys His Phe Gly His His Leu Ile Glu Leu
          50           55           60
Ala Ala Gly Phe Ala Leu Thr Ala Val Leu Ala Tyr Ile Leu Glu Ser
          65           70           75           80
Arg Ala Gly Ala Val His Asp Gln Gly Trp Glu Phe Tyr Ala Thr Val
          85           90           95
Val Cys Leu Tyr Leu Ile Phe Ala Phe Pro Cys Phe Val Trp Arg Tyr
          100          105          110
Phe Trp His Thr Arg Asn Arg Glu
          115          120
```

<210> 1075

<211> 384

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1075

```
atgcaagtcg ccttttttct cgccgtggta ttcaaaaata tgggtttcca caatcgcatc 60
ggtcgggcag gcctcttcgc agaaaccgca gaagatgcac ttggtcaggt cgatgtcgta 120
acgcttggtg cggcgggtgc cgtcttcgcg ttcttccgat tcgatgttga tcgccattgc 180
cggacacacc gcctcgcaca atttacacgc gatgcagcgt tcctctccgt tcggaaaacg 240
gcgttgccgc tgcagaccgc ggaaacgcac ggattgcggc gttttctctt cgggaaaata 300
aattgtgtct ttgcgggcaa aaaagttttt gagcgttacg cccatgcctt tgaccagttc 360
gccaaagcaga aaggttttta ctaa                                     384
```

<210> 1076

<211> 127

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1076

```
Met Gln Val Ala Phe Phe Leu Ala Val Val Phe Lys Asn Met Gly Phe
 1           5           10           15
His Asn Arg Ile Gly Arg Ala Gly Leu Phe Ala Glu Thr Ala Glu Asp
          20           25           30
Ala Leu Gly Gln Val Asp Val Val Thr Leu Gly Ala Ala Gly Ala Val
```

35	40	45
Phe Ala Phe Phe Arg Phe Asp Val Asp Arg His Cys Arg Thr His Arg		
50	55	60
Leu Ala Gln Phe Thr Arg Asp Ala Ala Phe Leu Ser Val Arg Lys Thr		
65	70	75
Ala Leu Arg Val Gln Thr Ala Glu Thr His Gly Leu Arg Arg Phe Leu		
	85	90
Phe Gly Lys Ile Asn Cys Val Phe Ala Gly Lys Lys Val Phe Glu Arg		
	100	105
Tyr Ala His Ala Phe Asp Gln Phe Ala Lys Gln Lys Gly Phe Tyr		
	115	120
		125

<210> 1077  
 <211> 384  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1077  
 gtgcaagtcg ccttttttct cgccgtggta ttcaaaaata tgggtttcca caatcgcatc 60  
 agtcgggcat gcctcttcgc agaaaccgca gaagatgcac ttggtcaggt cgatgtcgta 120  
 acgcttggtg cggcgcgtac cgtcttcacg ttcttccgat tcgatgttaa tcgccattgc 180  
 cggacacact gcctcacaca acttacacgc gatacaccgc tcttcgccgt tcggataaccg 240  
 ccgctgcgcg tgcagaccgc ggaaacgcac ggattgcggc gttttctctt cggggaaata 300  
 aattgtgtct ttgcgggcga aaaagtgttt gagcgttacg cccatacctt ttaccaattc 360  
 gccaaagcaga aaggttttta ctaa 384

<210> 1078  
 <211> 127  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1078  
 Val Gln Val Ala Phe Phe Leu Ala Val Val Phe Lys Asn Met Gly Phe  
 1 5 10 15  
 His Asn Arg Ile Ser Arg Ala Cys Leu Phe Ala Glu Thr Ala Glu Asp  
 20 25 30  
 Ala Leu Gly Gln Val Asp Val Val Thr Leu Gly Ala Ala Arg Thr Val  
 35 40 45  
 Phe Thr Phe Phe Arg Phe Asp Val Asn Arg His Cys Arg Thr His Cys  
 50 55 60  
 Leu Thr Gln Leu Thr Arg Asp Thr Pro Leu Phe Ala Val Arg Ile Pro  
 65 70 75 80  
 Pro Leu Arg Val Gln Thr Ala Glu Thr His Gly Leu Arg Arg Phe Leu  
 85 90 95

Phe Gly Glu Ile Asn Cys Val Phe Ala Gly Glu Lys Val Phe Glu Arg  
100 105 110

Tyr Ala His Thr Phe Tyr Gln Phe Ala Lys Gln Lys Gly Phe Tyr  
115 120 125

<210> 1079

<211> 384

<212> DNA

<213> Neisseria meningitidis

<400> 1079

gtgcaagtcg ccttttttct cgccgtggta ttcaaaaata tgggtttcca caatcgcatc 60  
ggtcgggcag gcttcttcgc agaaaccgca gaagatgcac ttggtcaggc cgatgtcgta 120  
acgcttgggtg cggcgcggtgc cgtcttcgcg ttcttccgat tcgatgttga tcgccattgc 180  
ggggcaaacg gcttcacaca atttacacgc gatgcagcgt tcctcgccgt ttggataacg 240  
gcgttgccgcg tgcagaccgc ggaaacgcac ggattgcggc gttttctctt cgggaaaata 300  
aatcgtgtct ttgcgggcaa aaaagttttt gagcgttacg cccatacctt ttaccaattc 360  
gccaagcaga aaggttttta ctaa 384

<210> 1080

<211> 127

<212> PRT

<213> Neisseria meningitidis

<400> 1080

Val Gln Val Ala Phe Phe Leu Ala Val Val Phe Lys Asn Met Gly Phe  
1 5 10 15

His Asn Arg Ile Gly Arg Ala Gly Phe Phe Ala Glu Thr Ala Glu Asp  
20 25 30

Ala Leu Gly Gln Val Asp Val Val Thr Leu Gly Ala Ala Arg Ala Val  
35 40 45

Phe Ala Phe Phe Arg Phe Asp Val Asp Arg His Cys Gly Ala Asn Gly  
50 55 60

Phe Thr Gln Phe Thr Arg Asp Ala Ala Phe Leu Ala Val Trp Ile Thr  
65 70 75 80

Ala Leu Arg Val Gln Thr Ala Glu Thr His Gly Leu Arg Arg Phe Leu  
85 90 95

Phe Gly Lys Ile Asn Arg Val Phe Ala Gly Lys Lys Val Phe Glu Arg  
100 105 110

Tyr Ala His Thr Phe Tyr Gln Phe Ala Lys Gln Lys Gly Phe Tyr  
115 120 125

<210> 1081

<211> 1014

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1081

```
atgaaaaaaaa atttaccgcg actggcattg gcaagtatgc tgattttgtc gggctgcgac 60
cgtttgggaa taggcaaccc gttttccgga aaggaaatct cctgcggaag cgaagagact 120
aaagagattt tgggtcaaact ggtccgcgac aatgtcgaag gtgaaaccgt caaaactttt 180
gacgacgacg cattcaaaga ccaagcattt gccgatatcg gcatatcgca tatccgcaga 240
atggtcgaac gtttgggcat aaccgtcgat gaagtccgaa ctaccgagaa aaccgacacg 300
tccagcaaac tcaaattgtga agccgcgtta aaactggacg tgcccgcaga tgttgctgat 360
tatgccgtcg ccgccaacca atctataggc aacagccata agaaaacgcc cgactttttt 420
gaaccctact accgcaaaga aggcgcgtat tatgtcaaaa ctattttctta cagcgtccag 480
ccgacagacg acaaaagcaa aatctttgcc gaactcagtc aggcacacga tatcatccat 540
ccgctcagcg agctggtgtc tatggcactg attaaagagc cgttggacaa agcgaaaaca 600
aggaacgaaa aacttgaagc ggcagaagcc accgcgcagg aagcgaggga ggcagaagaa 660
gcggcggcgc aggaggcatt gggtcgggag caggaagccg cccgcgtatc cgaatgggaa 720
gaacgtaca agctgtcgcg cagcgagttc gagcagtttt ggaaaggatt gcctcaaaact 780
gtacagaata agctgcaagc ctgcgagaaa acatggaaaa gcggtatgga caagatctgt 840
gccaacaatg cgaaaagccga aggtgaaacg ccaaaccgca taaaagtcag tgagttggcg 900
tgtaaaacgg cagaaccga agcacgcttg gaagagctgc acaaccgtaa aaaagccctt 960
atcgacgaaa tggtcaggga agaggacaag aaagaactgc caaagcggct ctga 1014
```

<210> 1082

<211> 337

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1082

```
Met Lys Lys Asn Leu Pro Ala Leu Ala Leu Ala Ser Met Leu Ile Leu
  1              5              10              15

Ser Gly Cys Asp Arg Leu Gly Ile Gly Asn Pro Phe Ser Gly Lys Glu
      20              25              30

Ile Ser Cys Gly Ser Glu Glu Thr Lys Glu Ile Leu Val Lys Leu Val
      35              40              45

Arg Asp Asn Val Glu Gly Glu Thr Val Lys Thr Phe Asp Asp Asp Ala
      50              55              60

Phe Lys Asp Gln Ala Phe Ala Asp Ile Gly Ile Ser His Ile Arg Arg
      65              70              75              80

Met Val Glu Arg Leu Gly Ile Thr Val Asp Glu Val Arg Thr Thr Glu
      85              90              95

Lys Thr Asp Thr Ser Ser Lys Leu Lys Cys Glu Ala Ala Leu Lys Leu
      100             105             110

Asp Val Pro Asp Asp Val Val Asp Tyr Ala Val Ala Ala Asn Gln Ser
      115             120             125

Ile Gly Asn Ser His Lys Lys Thr Pro Asp Phe Phe Glu Pro Tyr Tyr
      130             135             140

Arg Lys Glu Gly Ala Tyr Tyr Val Lys Thr Ile Ser Tyr Ser Val Gln
```

145		150		155		160
Pro Thr Asp Asp Lys Ser Lys Ile Phe Ala Glu Leu Ser Gln Ala His						
	165			170		175
Asp Ile Ile His Pro Leu Ser Glu Leu Val Ser Met Ala Leu Ile Lys						
	180		185			190
Glu Pro Leu Asp Lys Ala Lys Gln Arg Asn Glu Lys Leu Glu Ala Ala						
	195		200			205
Glu Ala Thr Ala Gln Glu Ala Arg Glu Ala Glu Glu Ala Ala Ala Gln						
	210		215			220
Glu Ala Leu Gly Arg Glu Gln Glu Ala Ala Arg Val Ser Glu Trp Glu						
	225		230		235	240
Glu Arg Tyr Lys Leu Ser Arg Ser Glu Phe Glu Gln Phe Trp Lys Gly						
	245		250			255
Leu Pro Gln Thr Val Gln Asn Lys Leu Gln Ala Ser Gln Lys Thr Trp						
	260		265			270
Lys Ser Gly Met Asp Lys Ile Cys Ala Asn Asn Ala Lys Ala Glu Gly						
	275		280			285
Glu Thr Pro Asn Gly Ile Lys Val Ser Glu Leu Ala Cys Lys Thr Ala						
	290		295			300
Glu Thr Glu Ala Arg Leu Glu Glu Leu His Asn Arg Lys Lys Ala Leu						
	305		310		315	320
Ile Asp Glu Met Val Arg Glu Glu Asp Lys Lys Glu Leu Pro Lys Arg						
	325		330			335

Leu

<210> 1083  
 <211> 422  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1083  
 atggcactga ttaaagagcc gttggacaaa gtgaaacaaa ggaacgaaga acttgaagcg 60  
 gcagaagaag cggcggcgca ggaggcattg ggtcgggagc aggaagccgc ccgcgtatcc 120  
 gaatgggaag aacgctacaa gctgtcgcgc agcagttcga gcagttcttg aaaggattgc 180  
 ctcaaacggt acagaataag ctgcaacct cacagaaaac atggaaaagc gggatggata 240  
 aaatctgtgc caacaatgcg aaagctgaag gtaaaacgcc aaacggcata aaattcagcg 300  
 aactggcatg caaacggcg aaaaccgaag cacgcttgga agagctgcac aaccgtaaaa 360  
 aagcccttat cgacgaaatg gycaggggaag cggacamgaa agaactgtca aagcggctst 420  
 ga 422

<210> 1084  
 <211> 140



<212> PRT

<213> *Neisseria meningitidis*

<400> 1084

Met Ala Leu Ile Lys Glu Pro Leu Asp Lys Val Lys Gln Arg Asn Glu  
1 5 10 15

Glu Leu Glu Ala Ala Glu Glu Ala Ala Ala Gln Glu Ala Leu Gly Arg  
20 25 30

Glu Gln Glu Ala Ala Arg Val Ser Glu Trp Glu Glu Arg Tyr Lys Leu  
35 40 45

Ser Arg Xaa Gln Phe Glu Gln Phe Trp Lys Gly Leu Pro Gln Thr Val  
50 55 60

Gln Asn Lys Leu Gln Pro Ser Gln Lys Thr Trp Lys Ser Gly Met Asp  
65 70 75 80

Lys Ile Cys Ala Asn Asn Ala Lys Ala Glu Gly Lys Thr Pro Asn Gly  
85 90 95

Ile Lys Phe Ser Glu Leu Ala Cys Lys Thr Ala Lys Thr Glu Ala Arg  
100 105 110

Leu Glu Glu Leu His Asn Arg Lys Lys Ala Leu Ile Asp Glu Met Xaa  
115 120 125

Arg Glu Ala Asp Xaa Lys Glu Leu Ser Lys Arg Leu  
130 135 140

<210> 1085

<211> 423

<212> DNA

<213> *Neisseria meningitidis*

<400> 1085

atggcactga ttaaagagcc gttggacaaa gcgaaacaaa ggaacgaaga acttgaagcg 60  
gcagaagaag cggcggcgca ggaggcattg ggtcgggagc aggaagtcga ccgcgtatcc 120  
gaatgggaag aacgctacaa gctgtcgcgc agcgagttcg agcagttctg gaaaggattg 180  
cctcaaaccg tacagaataa gctgcaagcc tcacagaaaa catggaaaag cgggatggat 240  
aaaatctgtg ccaacaatgc gaaagctgaa ggtgaaacgc caaacggcat aaaattcagc 300  
gaactggcat gcaaaacggc ggaaaccgaa gcacgcttgg aagagctgca caaccgtaaa 360  
aaagcccttc tcgacgaaat ggccagggaa gcggacaaga aagaactgcc aaagcggctc 420  
tga 423

<210> 1086

<211> 140

<212> PRT

<213> *Neisseria meningitidis*

<400> 1086

Met Ala Leu Ile Lys Glu Pro Leu Asp Lys Ala Lys Gln Arg Asn Glu  
1 5 10 15

Glu Leu Glu Ala Ala Glu Glu Ala Ala Ala Gln Glu Ala Leu Gly Arg  
                   20                                  25                                  30  
 Glu Gln Glu Val Asp Arg Val Ser Glu Trp Glu Glu Arg Tyr Lys Leu  
                   35                                  40                                  45  
 Ser Arg Ser Glu Phe Glu Gln Phe Trp Lys Gly Leu Pro Gln Thr Val  
                   50                                  55                                  60  
 Gln Asn Lys Leu Gln Ala Ser Gln Lys Thr Trp Lys Ser Gly Met Asp  
                   65                                  70                                  75                                  80  
 Lys Ile Cys Ala Asn Asn Ala Lys Ala Glu Gly Glu Thr Pro Asn Gly  
                                   85                                  90                                  95  
 Ile Lys Phe Ser Glu Leu Ala Cys Lys Thr Ala Glu Thr Glu Ala Arg  
                   100                                  105                                  110  
 Leu Glu Glu Leu His Asn Arg Lys Lys Ala Leu Leu Asp Glu Met Ala  
                   115                                  120                                  125  
 Arg Glu Ala Asp Lys Lys Glu Leu Pro Lys Arg Leu  
                   130                                  135                                  140

<210> 1087  
 <211> 477  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1087  
 gtgcaatccc gatatgatgg tttgcataaa tttaaacata tatgtttcgc agctatggca 60  
 ctgattaaag agccgttgga caaagtgaaa caaaggaacg aagaacttga agcggcagaa 120  
 gaagcggcgg cgaggaggc attgggtcgg gagcaggaag ccgccgcgt atccgaatgg 180  
 gaagaacgct acaagctgtc gcgcagcgag ttcgagcagt tctggaaagg attgcctcaa 240  
 accgtacaga ataagctgca agcctcacag aaaacatgga aaagcgggat ggataaaatc 300  
 tgtgccaaaca atgcgaaagc tgaaggtaaa acgccaaacg gcataaaatt cagcgaactg 360  
 gcatgcaaaa cggcgaaaac cgaagcacgc ttggaagagc tgcacaaccg taaaaaagcc 420  
 cttatcgacg aaatggccag ggaagcggac aagaaagaac tgtcaaagcg gctctga 477

<210> 1088  
 <211> 158  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1088  
 Val Gln Ser Arg Tyr Asp Gly Leu His Lys Phe Lys His Ile Cys Ser  
                   1                                  5                                  10                                  15  
 Ala Ala Met Ala Leu Ile Lys Glu Pro Leu Asp Lys Val Lys Gln Arg  
                   20                                  25                                  30  
 Asn Glu Glu Leu Glu Ala Ala Glu Glu Ala Ala Ala Gln Glu Ala Leu  
                   35                                  40                                  45  
 Gly Arg Glu Gln Glu Ala Ala Arg Val Ser Glu Trp Glu Glu Arg Tyr

50	55	60
Lys Leu Ser Arg Ser Glu Phe Glu Gln Phe Trp Lys Gly Leu Pro Gln		
65	70	75 80
Thr Val Gln Asn Lys Leu Gln Ala Ser Gln Lys Thr Trp Lys Ser Gly		
	85	90 95
Met Asp Lys Ile Cys Ala Asn Asn Ala Lys Ala Glu Gly Lys Thr Pro		
	100	105 110
Asn Gly Ile Lys Phe Ser Glu Leu Ala Cys Lys Thr Ala Lys Thr Glu		
	115	120 125
Ala Arg Leu Glu Glu Leu His Asn Arg Lys Lys Ala Leu Ile Asp Glu		
	130	135 140
Met Ala Arg Glu Ala Asp Lys Lys Glu Leu Ser Lys Arg Leu		
145	150	155

<210> 1089  
 <211> 477  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1089  
 gtgcaatccc gatatgatgg tttgcataaa tttaaacata tatgttccgc agctatggca 60  
 ctgattaaag agccgttgga caaagcgaaa caaaggaacg aagaacttga agcggcagaa 120  
 gaagcggcgg cgcaggaggc attgggtcgg gaggcaggaag tcgaccgcgt atccgaatgg 180  
 gaagaacgct acaagctgtc gcgcagcgag ttcgagcagt tctggaaagg attgcctcaa 240  
 accgtacaga ataagctgca agcctcacag aaaacatgga aaagcgggat ggataaaatc 300  
 tgtgccaaca atgcgaaaagc tgaaggtgaa acgccaaaac gcataaaatt cagcgaactg 360  
 gcatgcaaaa cggcggaaaac cgaagcacgc ttggaagagc tgcacaaccg taaaaaagcc 420  
 cttctcgacg aaatggccag ggaagcggac aagaaagaac tgccaaagcg gctctga 477

<210> 1090  
 <211> 158  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1090  
 Val Gln Ser Arg Tyr Asp Gly Leu His Lys Phe Lys His Ile Cys Ser  
 1 5 10 15  
 Ala Ala Met Ala Leu Ile Lys Glu Pro Leu Asp Lys Ala Lys Gln Arg  
 20 25 30  
 Asn Glu Glu Leu Glu Ala Ala Glu Glu Ala Ala Ala Gln Glu Ala Leu  
 35 40 45  
 Gly Arg Glu Gln Glu Val Asp Arg Val Ser Glu Trp Glu Glu Arg Tyr  
 50 55 60  
 Lys Leu Ser Arg Ser Glu Phe Glu Gln Phe Trp Lys Gly Leu Pro Gln  
 65 70 75 80

Thr Val Gln Asn Lys Leu Gln Ala Ser Gln Lys Thr Trp Lys Ser Gly  
85 90 95

Met Asp Lys Ile Cys Ala Asn Asn Ala Lys Ala Glu Gly Glu Thr Pro  
100 105 110

Asn Gly Ile Lys Phe Ser Glu Leu Ala Cys Lys Thr Ala Glu Thr Glu  
115 120 125

Ala Arg Leu Glu Glu Leu His Asn Arg Lys Lys Ala Leu Leu Asp Glu  
130 135 140

Met Ala Arg Glu Ala Asp Lys Lys Glu Leu Pro Lys Arg Leu  
145 150 155

<210> 1091

<211> 366

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1091

atggtttggc gtgtgaattg cgcggcaacg gcggcgctga ttttttcgtc cagcccttgg 60  
atttgggcgg tgggtgtgggt gtggtcgcgg tcggcttttt cctgcaaacc ttgcgccagc 120  
cttgacgcgt ccagtgcgcc ggcgttggcg gtttcgccgt gggactttat ccggaacacg 180  
gcttcgcccc aggtgtcggc ggctttgatg cacagtttta aaaccagggc tttggggcgg 240  
ttttctgcgc cgcgcgttgc cattttgctg tccaatcgcg gggttaaaaa accgttgtcg 300  
tttaagtcgc cgtccgtcca agtcgatacg agcgcgcttc tttgccttcc attgcggtct 360  
tcgtaa 366

<210> 1092

<211> 121

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1092

Met Val Trp Arg Val Asn Cys Ala Ala Thr Ala Ala Leu Ile Phe Ser  
1 5 10 15

Ser Ser Pro Trp Ile Trp Ala Val Val Trp Val Trp Ser Arg Ser Ala  
20 25 30

Phe Ser Cys Lys Pro Cys Ala Ser Leu Asp Ala Ser Ser Ala Pro Ala  
35 40 45

Leu Ala Val Ser Pro Trp Asp Phe Ile Arg Asn Thr Ala Ser Pro Lys  
50 55 60

Val Ser Ala Ala Leu Met His Ser Phe Lys Thr Arg Ala Leu Gly Arg  
65 70 75 80

Phe Ser Ala Pro Pro Val Ala Ile Leu Leu Ser Asn Arg Gly Val Lys  
85 90 95

Lys Pro Leu Ser Phe Lys Ser Pro Ser Val Gln Val Asp Thr Ser Ala

100

105

110

Leu Leu Cys Leu Ser Leu Arg Ser Ser  
 115 120

&lt;210&gt; 1093

&lt;211&gt; 363

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1093

atggtttggc gtgtgaattg cgcggcaacg gcggtgctga ttttttcgtc cagcccttgg 60  
 atttgggcgg cgggtgtgggt gtggtctcgg tcggctttgt cttgcaaacc ttgcgccacg 120  
 tgcccgctc cagcgctgc gttgatggtt tcgccgtggg actttatcca aaacacggct 180  
 tcgcccgaagg tgcggcggc tttgatgcac agttttaaaa ccagggtttt ggggcggttt 240  
 tcgtcgccgc ctgtcgccat tttgctgtcc gagcgcgggg ttaaaaagcc gttgtcggtt 300  
 aaattttcgt ccgtccaagt cgatacgagc gcgcttctct gcctttcgtt gcggtcttcg 360  
 taa 363

&lt;210&gt; 1094

&lt;211&gt; 120

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1094

Met Val Trp Arg Val Asn Cys Ala Ala Thr Ala Val Leu Ile Phe Ser  
 1 5 10 15

Ser Ser Pro Trp Ile Trp Ala Ala Val Trp Val Trp Ser Arg Ser Ala  
 20 25 30

Leu Ser Cys Lys Pro Cys Ala Thr Cys Pro Arg Pro Ala Pro Ala Leu  
 35 40 45

Met Val Ser Pro Trp Asp Phe Ile Gln Asn Thr Ala Ser Pro Lys Val  
 50 55 60

Ser Ala Ala Leu Met His Ser Phe Lys Thr Arg Ala Leu Gly Arg Phe  
 65 70 75 80

Ser Ser Pro Pro Val Ala Ile Leu Leu Ser Glu Arg Gly Val Lys Lys  
 85 90 95

Pro Leu Ser Phe Lys Phe Ser Ser Val Gln Val Asp Thr Ser Ala Leu  
 100 105 110

Leu Cys Leu Ser Leu Arg Ser Ser  
 115 120

&lt;210&gt; 1095

&lt;211&gt; 366

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

<400> 1095

```
atgggtttggc gtgtgaattg cgcggcaacg gcggtgctga ttttttcgtc cagcccttgg 60
atttgggcgcg cggtgtgggt gtgggcgcgg tctgctttgt cttggagggt ttgcgccagc 120
gtgcccgcgt ccagcgcgcc ggcgttgacg gtttcgccgt gggactttat ccagaacacg 180
gcttcgcccc aggtgtcggc ggctttgatg cacagtttta aaaccagggc tttggggcgg 240
ttttcgtcgc cgcctgtcgc cattttgctg tccgggcgcg gggttaaaaa gccgttgctg 300
tttaaatttt cgtccgtcca agtcgatacg agcgcgcttc tctgcctttc gttgtggtct 360
tcgtaa 366
```

<210> 1096

<211> 121

<212> PRT

<213> *Neisseria meningitidis*

<400> 1096

```
Met Val Trp Arg Val Asn Cys Ala Ala Thr Ala Val Leu Ile Phe Ser
  1             5             10             15

Ser Ser Pro Trp Ile Trp Ala Ala Val Trp Val Trp Ala Arg Ser Ala
          20             25             30

Leu Ser Trp Arg Phe Cys Ala Ser Val Pro Ala Ser Ser Ala Pro Ala
          35             40             45

Leu Thr Val Ser Pro Trp Asp Phe Ile Gln Asn Thr Ala Ser Pro Lys
          50             55             60

Val Ser Ala Ala Leu Met His Ser Phe Lys Thr Arg Ala Leu Gly Arg
          65             70             75             80

Phe Ser Ser Pro Pro Val Ala Ile Leu Leu Ser Gly Arg Gly Val Lys
          85             90             95

Lys Pro Leu Ser Phe Lys Phe Ser Ser Val Gln Val Asp Thr Ser Ala
          100            105            110

Leu Leu Cys Leu Ser Leu Trp Ser Ser
          115            120
```

<210> 1097

<211> 423

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1097

```
atgaataaaa accgcaaatt actgcttgcc gcaactgctgc tgactgcctt tgccgccttc 60
aagctcgttt tgttgcaatg gtggcaggcg cagcagccgc aagccgtggc ggcgcaatgc 120
gatttgaccg agggttgcac gctgccggac ggaagccgtg tccgcgccgc cgccgtttca 180
acaaaaaac cgtttgatat ttatatcgaa cacgcgcccg ccggcacgga acaggtcagc 240
atcagcttca gtatgaaaaa tatggatatg ggtttcaacc gctatatgtt cgagcggcaa 300
ccgtcgggga cttggcaggc agcacgcata cgcctgcccg tctgtgtcga aggcaggcgc 360
gattttacgg cggacattac aatcggcagc cggacatttc agacggcatt taccgccgaa 420
taa 423
```

<210> 1098

<211> 140

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1098

Met Asn Lys Asn Arg Lys Leu Leu Leu Ala Ala Leu Leu Leu Thr Ala  
1 5 10 15

Phe Ala Ala Phe Lys Leu Val Leu Leu Gln Trp Trp Gln Ala Gln Gln  
20 25 30

Pro Gln Ala Val Ala Ala Gln Cys Asp Leu Thr Glu Gly Cys Thr Leu  
35 40 45

Pro Asp Gly Ser Arg Val Arg Ala Ala Ala Val Ser Thr Lys Lys Pro  
50 55 60

Phe Asp Ile Tyr Ile Glu His Ala Pro Ala Gly Thr Glu Gln Val Ser  
65 70 75 80

Ile Ser Phe Ser Met Lys Asn Met Asp Met Gly Phe Asn Arg Tyr Met  
85 90 95

Phe Glu Arg Gln Pro Ser Gly Thr Trp Gln Ala Ala Arg Ile Arg Leu  
100 105 110

Pro Val Cys Val Glu Gly Arg Arg Asp Phe Thr Ala Asp Ile Thr Ile  
115 120 125

Gly Ser Arg Thr Phe Gln Thr Ala Phe Thr Ala Glu  
130 135 140

<210> 1099

<211> 422

<212> DNA

<213> *Neisseria meningitidis*

<400> 1099

atgaataaaa accgtaaatt actgcttgcc gcaactgctgc tgattgcctt tgccgccgtc 60  
aagctcggtt tgttgcaatg gtggcaggcg cacagccgca agctgtggcg gcgcaatgcg 120  
atttgaccga gggttgcacg ctgccggacg gaagccgcgt ccgcgccgcc gccgtttcaa 180  
ccaaaaaacc gtttgatatt tatatcgaac acgcgcccg cggcacggaa caggtcagca 240  
tcagcttcag tatgaaaaat atggatatgg gtttcaaccg ctatatgttc gagcggcaac 300  
cgtcggggac ttggcaggca gtacgcatcc gcctgcccat ctgtgtcgaa ggcaggcgcg 360  
attttacggc ggacattaca atcggcagtc ggacatttca gacggcattt accgccgaat 420  
aa 422

<210> 1100

<211> 140

<212> PRT

<213> *Neisseria meningitidis*

<400> 1100

Met Asn Lys Asn Arg Lys Leu Leu Leu Ala Ala Leu Leu Leu Ile Ala  
 1 5 10 15  
 Phe Ala Ala Val Lys Leu Val Leu Leu Gln Trp Trp Gln Ala Xaa Gln  
 20 25 30  
 Pro Gln Ala Val Ala Ala Gln Cys Asp Leu Thr Glu Gly Cys Thr Leu  
 35 40 45  
 Pro Asp Gly Ser Arg Val Arg Ala Ala Ala Val Ser Thr Lys Lys Pro  
 50 55 60  
 Phe Asp Ile Tyr Ile Glu His Ala Pro Ala Gly Thr Glu Gln Val Ser  
 65 70 75 80  
 Ile Ser Phe Ser Met Lys Asn Met Asp Met Gly Phe Asn Arg Tyr Met  
 85 90 95  
 Phe Glu Arg Gln Pro Ser Gly Thr Trp Gln Ala Val Arg Ile Arg Leu  
 100 105 110  
 Pro Ile Cys Val Glu Gly Arg Arg Asp Phe Thr Ala Asp Ile Thr Ile  
 115 120 125  
 Gly Ser Arg Thr Phe Gln Thr Ala Phe Thr Ala Glu  
 130 135 140

<210> 1101  
 <211> 423  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1101  
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 gatttgaccg agggttgcac gctgccggac ggaagccgcg tccgcgcgcg cgccgtttca 180  
 accaaaaaac cgtttgatat ttatatcgaa cacgcgcccg ccggcacgga acaggtcagc 240  
 atcagcttca gtatgaaaaa tatggatatg ggtttcaacc gctatatgtt cgagcggcaa 300  
 ccgtcgggga cttggcaggc agtacgcac cgcctgccca tctgtgtcga aggcaggcgc 360  
 gattttacgg cggacattac aatcggcagc cggacatttc agacggcatt taccgccgaa 420  
 taa 423

<210> 1102  
 <211> 140  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1102  
 Met Asn Lys Asn Arg Lys Leu Leu Leu Ala Ala Leu Leu Leu Ile Ala  
 1 5 10 15  
 Phe Ala Ala Val Lys Leu Val Leu Leu Gln Trp Trp Gln Ala Gln Gln  
 20 25 30  
 Pro Gln Ala Val Ala Ala Gln Cys Asp Leu Thr Glu Gly Cys Thr Leu



35

40

45

Pro Asp Gly Ser Arg Val Arg Ala Ala Ala Val Ser Thr Lys Lys Pro  
50 55 60

Phe Asp Ile Tyr Ile Glu His Ala Pro Ala Gly Thr Glu Gln Val Ser  
65 70 75 80

Ile Ser Phe Ser Met Lys Asn Met Asp Met Gly Phe Asn Arg Tyr Met  
85 90 95

Phe Glu Arg Gln Pro Ser Gly Thr Trp Gln Ala Val Arg Ile Arg Leu  
100 105 110

Pro Ile Cys Val Glu Gly Arg Arg Asp Phe Thr Ala Asp Ile Thr Ile  
115 120 125

Gly Ser Arg Thr Phe Gln Thr Ala Phe Thr Ala Glu  
130 135 140

&lt;210&gt; 1103

&lt;211&gt; 573

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 1103

atgttcagtt cgcggatggc gaggatttgg gcgacggggg taacgttgtg tatggtcagt 60  
ccgtgtccgg cgttgacgac caagcccaaa tcgccggcga aatgcgcgcc gttttggatg 120  
cgctcgaact gcctgatttg ttcggcgtgg ctttgtgcgt cggcatatgc gccggtgtgc 180  
agctcgacaa cggcgcgccc gacatcacgg gcggcttggg tttgcctgtc gtcggcatcg 240  
ataaacaagg acacgcgtat gccgcgctcg gtcaggattt tggcgaattc gccgattttt 300  
tcctgttgcg ccaatacgtc caaaccgcct tcggtcgtga tttcctgcgc tttttcaggc 360  
acgatgcaca cgtcttccgg catcacttta agcgcgtttt cgagcatttc ttccgtcaac 420  
gccatttcaa ggttcaggcg cgtgcggatg gcgtttttga cggcaaatac atccgcgtct 480  
ttgatgtggc ggcggtcttc ggcgaggtgc atggtaatca ggtctgcacc gtgcgtttcg 540  
gcaaccagtg ccgcctccac ggggctggga taa 573

&lt;210&gt; 1104

&lt;211&gt; 190

&lt;212&gt; PRT

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 1104

Met Phe Ser Ser Arg Met Ala Arg Ile Trp Ala Thr Gly Val Thr Leu  
1 5 10 15

Cys Met Val Ser Pro Cys Pro Ala Leu Thr Thr Lys Pro Lys Ser Pro  
20 25 30

Ala Lys Cys Ala Pro Phe Trp Met Arg Ser Asn Cys Leu Ile Cys Ser  
35 40 45

Ala Trp Leu Cys Ala Ser Ala Tyr Ala Pro Val Cys Ser Ser Thr Thr  
50 55 60

Gly Ala Pro Thr Ser Arg Ala Ala Trp Ile Cys Leu Ser Ser Ala Ser  
65 70 75 80

Ile Asn Lys Asp Thr Arg Met Pro Ala Ser Val Arg Ile Leu Ala Asn  
85 90 95

Ser Ala Ile Phe Ser Cys Cys Ala Asn Thr Ser Lys Pro Pro Ser Val  
100 105 110

Val Ile Ser Cys Arg Phe Ser Gly Thr Met His Thr Ser Ser Gly Ile  
115 120 125

Thr Leu Ser Ala Phe Ser Ser Ile Ser Ser Val Asn Ala Ile Ser Arg  
130 135 140

Phe Arg Arg Val Arg Met Ala Phe Leu Thr Ala Asn Thr Ser Ala Ser  
145 150 155 160

Leu Met Trp Arg Arg Ser Ser Arg Arg Cys Met Val Ile Arg Ser Ala  
165 170 175

Pro Cys Val Ser Ala Thr Ser Ala Ala Ser Thr Gly Leu Gly  
180 185 190

<210> 1105

<211> 573

<212> DNA

<213> Neisseria meningitidis

<400> 1105

awgttcagtt cgcgatggc gaggatttgg gcgatggggg taacgttggt tatggtcagt 60  
ccgtgtccgg cgttgacgac caagcccaaa tcgcggcgga aatgcgcgcc gttttggatg 120  
cgctcgaact gcctgatttg ttccggcgtg ctgcgcgcgt cggcatacgc gcctgtgtgc 180  
agctcgacaa cgggcgcgcc gacatcacgg gcggcttgga ttgcctgtc gtccggcatcg 240  
ataaacaaag acacgcgtat gcctgcgtcg gtcaggattt tgggaaccc ggcgattttt 300  
tcctgttgcg ccaatacgtc caaacgcct tcggtcgtga ttccctgacg tttttcaggc 360  
acgatgcaca cgtcttccgg catcactttc aaagcgttt ccaacatttc ttccgtcaac 420  
gccatttcaa gggtcaggcg cgtgcggatg gcgtttttga cggcaaacac gtccgcgtct 480  
ttgatgtggc ggcggtcttc gcgcaggtgc atggtaatca aatccgcacc gtgcgtttcg 540  
gcaaccagtg ccgcctccac ggggctggga taa 573

<210> 1106

<211> 190

<212> PRT

<213> Neisseria meningitidis

<400> 1106

Xaa Phe Ser Ser Arg Met Ala Arg Ile Trp Ala Met Gly Val Thr Leu  
1 5 10 15

Cys Met Val Ser Pro Cys Pro Ala Leu Thr Thr Lys Pro Lys Ser Pro  
20 25 30

Ala Lys Cys Ala Pro Phe Trp Met Arg Ser Asn Cys Leu Ile Cys Ser  
35 40 45

Ala Trp Leu Arg Ala Ser Ala Tyr Ala Pro Val Cys Ser Ser Thr Thr  
50 55 60

Gly Ala Pro Thr Ser Arg Ala Ala Trp Ile Cys Leu Ser Ser Ala Ser  
65 70 75 80

Ile Asn Lys Asp Thr Arg Met Pro Ala Ser Val Arg Ile Leu Val Asn  
85 90 95

Pro Ala Ile Phe Ser Cys Cys Ala Asn Thr Ser Lys Pro Pro Ser Val  
100 105 110

Val Ile Ser Xaa Arg Phe Ser Gly Thr Met His Thr Ser Ser Gly Ile  
115 120 125

Thr Phe Lys Ala Phe Ser Asn Ile Ser Ser Val Asn Ala Ile Ser Arg  
130 135 140

Phe Arg Arg Val Arg Met Ala Phe Leu Thr Ala Asn Thr Ser Ala Ser  
145 150 155 160

Leu Met Trp Arg Arg Ser Ser Arg Arg Cys Met Val Ile Lys Ser Ala  
165 170 175

Pro Cys Val Ser Ala Thr Ser Ala Ala Ser Thr Gly Leu Gly  
180 185 190

<210> 1107

<211> 573

<212> DNA

<213> Neisseria meningitidis

<400> 1107

atgttcagtt cgcgatggc gaggatttgg gcgatggggg taacgttgtg tatggtcagt 60  
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cgctcgaaact gctgatttg ttccggcgtg ctgcgcgcgt cggcatacgc gcctgtgtgc 180  
agctcgacaa cgggcgcgcc gacatcacgg gcggcttga tttgcctgtc gtcggcatcg 240  
ataaacaagg acacgcgtat gcccgcgctc gtcaggattt tggatgaattc ggcaattttg 300  
tcttggttgc ccaatacgtc caagccgcct tcggtcgtga tttcctgacg tttttccggc 360  
acgatgcaca cgtcttccgg catcacttta agcgcgtttt cgagcatttc ttccgtcaac 420  
gccatttcaa gggtcaggcg cgtgcggatg gcgtttttga cagcaaacac gtccgcgtct 480  
ttgatgtggc ggcggtcttc ggcaggtgc atggtaatca ggtcggcacc gtgcgtttcg 540  
gcaaccagtg ccgcctccac ggggctggga taa 573

<210> 1108

<211> 189

<212> PRT

<213> Neisseria meningitidis

<400> 1108

Met Phe Ser Ser Arg Met Ala Arg Ile Trp Ala Met Gly Val Thr Leu  
1 5 10 15

Cys Met Val Ser Pro Cys Pro Ala Leu Thr Thr Lys Pro Lys Ser Leu

20

25

30

Ala Lys Cys Ala Pro Phe Trp Met Arg Ser Asn Cys Leu Ile Cys Ser  
 35 40 45

Ala Trp Leu Arg Ala Ser Ala Tyr Ala Pro Val Cys Ser Ser Thr Thr  
 50 55 60

Gly Ala Pro Thr Ser Arg Ala Ala Trp Ile Cys Leu Ser Ser Ala Ser  
 65 70 75 80

Ile Asn Lys Asp Thr Arg Met Pro Ala Ser Val Arg Ile Leu Val Asn  
 85 90 95

Ser Ala Ile Leu Ser Cys Cys Ala Asn Thr Ser Lys Pro Pro Ser Val  
 100 105 110

Val Ile Ser Arg Phe Ser Gly Thr Met His Thr Ser Ser Gly Ile Thr  
 115 120 125

Leu Ser Ala Phe Ser Ser Ile Ser Ser Val Asn Ala Ile Ser Arg Phe  
 130 135 140

Arg Arg Val Arg Met Ala Phe Leu Thr Ala Asn Thr Ser Ala Ser Leu  
 145 150 155 160

Met Trp Arg Arg Ser Ser Arg Arg Cys Met Val Ile Arg Ser Ala Pro  
 165 170 175

Cys Val Ser Ala Thr Ser Ala Ala Ser Thr Gly Leu Gly  
 180 185

&lt;210&gt; 1109

&lt;211&gt; 1113

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 1109

atgactgcaa aggaagaact gttcgcatgg ctgcgccata tgaacaaaaa caaaggttcc 60  
 gacctgtttg tgacgaccca tttcccgccc gctatgaagc tggacggcaa aatcaccgcg 120  
 atcacggacg aaccgctgac ggcggaaaaa tgtatggaaa tcgccttttc gattatgagt 180  
 gcgaagcagg cggaagaatt ttcacgcacc aacgagtgca atttcgccat cagcctgccg 240  
 gacaccagcc gcttcgcggt caatgcgatg atacagcgcg gtgcgacggc gttggtattc 300  
 cgcgcgatta ccagcaagat tcccaagttt gaaagcctga acctgccgcc ggccttgaag 360  
 gatgttgcgc tgaaaaaacg cgggctggtt atttttgtcg gcggcaccgg ctcgggcaaa 420  
 tcgacttcgc tcgcctcgct tatcgactac cgcaatgaaa attcgttcgg acacatcatc 480  
 accatcgaag atccgatcga gtttgtccac gaacacaaaa actgcatcat taccagcgcg 540  
 gaggtcggcg tggacacgga aaactggatg gcggcggttg aaaatacgct gcgtcaggcg 600  
 ccgatgtga tccttatcgg cgaaatccgc gaccgtgaaa caatggacta cgccatcgcc 660  
 tttgccgaaa cggggcattt gtgtatggcg acgctgcacg ccaacagcac caatcaggcg 720  
 ctcgaccgca tcatacaact cttccccgag gagcggcgcg aacaattgct gacggatttg 780  
 tcgctcaacc ttcaggcggt tatttcgcaa cgctcgttc cgcgagacgg cggcaaggcg 840  
 aggggtggcg cagtcgaggt gctgctcaat tcgcccctga tttcgaggtt gattcacaac 900  
 ggcaacatcc atgaaatcaa agaagtgatg aaaaaatcca ctaccctggg tatgcagacc 960  
 ttcgaccaac acctttacca attgtatgaa aaaggcgaga tttccttgca ggatgccttg 1020  
 aaaaatgccg attccgcaca tgatttgcgt ttggcggtac agttgcgcag ccgcagggca 1080

caaagtccg accccgattt ggaactgctc tga

1113

<210> 1110

<211> 370

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1110

Met Thr Ala Lys Glu Glu Leu Phe Ala Trp Leu Arg His Met Asn Lys  
1 5 10 15  
Asn Lys Gly Ser Asp Leu Phe Val Thr Thr His Phe Pro Pro Ala Met  
20 25 30  
Lys Leu Asp Gly Lys Ile Thr Arg Ile Thr Asp Glu Pro Leu Thr Ala  
35 40 45  
Glu Lys Cys Met Glu Ile Ala Phe Ser Ile Met Ser Ala Lys Gln Ala  
50 55 60  
Glu Glu Phe Ser Ser Thr Asn Glu Cys Asn Phe Ala Ile Ser Leu Pro  
65 70 75 80  
Asp Thr Ser Arg Phe Arg Val Asn Ala Met Ile Gln Arg Gly Ala Thr  
85 90 95  
Ala Leu Val Phe Arg Ala Ile Thr Ser Lys Ile Pro Lys Phe Glu Ser  
100 105 110  
Leu Asn Leu Pro Pro Ala Leu Lys Asp Val Ala Leu Lys Lys Arg Gly  
115 120 125  
Leu Val Ile Phe Val Gly Gly Thr Gly Ser Gly Lys Ser Thr Ser Leu  
130 135 140  
Ala Ser Leu Ile Asp Tyr Arg Asn Glu Asn Ser Phe Gly His Ile Ile  
145 150 155 160  
Thr Ile Glu Asp Pro Ile Glu Phe Val His Glu His Lys Asn Cys Ile  
165 170 175  
Ile Thr Gln Arg Glu Val Gly Val Asp Thr Glu Asn Trp Met Ala Ala  
180 185 190  
Leu Lys Asn Thr Leu Arg Gln Ala Pro Asp Val Ile Leu Ile Gly Glu  
195 200 205  
Ile Arg Asp Arg Glu Thr Met Asp Tyr Ala Ile Ala Phe Ala Glu Thr  
210 215 220  
Gly His Leu Cys Met Ala Thr Leu His Ala Asn Ser Thr Asn Gln Ala  
225 230 235 240  
Leu Asp Arg Ile Ile Asn Phe Phe Pro Glu Glu Arg Arg Glu Gln Leu  
245 250 255

Leu Thr Asp Leu Ser Leu Asn Leu Gln Ala Phe Ile Ser Gln Arg Leu  
260 265 270

Val Pro Arg Asp Gly Gly Lys Gly Arg Val Ala Ala Val Glu Val Leu  
275 280 285

Leu Asn Ser Pro Leu Ile Ser Glu Leu Ile His Asn Gly Asn Ile His  
290 295 300

Glu Ile Lys Glu Val Met Lys Lys Ser Thr Thr Leu Gly Met Gln Thr  
305 310 315 320

Phe Asp Gln His Leu Tyr Gln Leu Tyr Glu Lys Gly Glu Ile Ser Leu  
325 330 335

Gln Asp Ala Leu Lys Asn Ala Asp Ser Ala His Asp Leu Arg Leu Ala  
340 345 350

Val Gln Leu Arg Ser Arg Arg Ala Gln Ser Ser Asp Pro Asp Leu Glu  
355 360 365

Leu Leu  
.370

<210> 1111

<211> 1113

<212> DNA

<213> *Neisseria meningitidis*

<400> 1111

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atcacggacg aaccgctgac ggcggaaaaa tgtatggaaa tcgccttttc gattatgagt 180
gcgaagcagg cggaagaatt ttcacgcacc aacgagtgca acttcgccat cagcctgccg 240
gacaccagcc gcttccgcgt caatgcgatg atacagcgcg gcgcgacggc gttgggtattc 300
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accatcgaag acccgatcga gtttgtccac gaacacaaaa actgcatcat caccagcgcg 540
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ttcgatcaac acctttacca attgtatgaa aaaggcgata tttccctgca agaagcattg 1020
aaaaatgccg attccgcaca cgatttgctg ttggcggtac agttgcgcag ccgccgcgcg 1080
caaagttyca gccccgattt ggnactgctc tga 1113
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<210> 1112

<211> 370

<212> PRT

<213> *Neisseria meningitidis*

<400> 1112

Met Thr Ala Lys Glu Glu Leu Phe Ala Trp Leu Arg His Met Xaa Gln  
1 5 10 15

Asn Lys Gly Ser Asp Leu Phe Val Thr Thr His Phe Pro Pro Ala Met  
20 25 30

Lys Leu Asp Gly Lys Ile Thr Arg Ile Thr Asp Glu Pro Leu Thr Ala  
35 40 45

Glu Lys Cys Met Glu Ile Ala Phe Ser Ile Met Ser Ala Lys Gln Ala  
50 55 60

Glu Glu Phe Ser Ser Thr Asn Glu Cys Asn Phe Ala Ile Ser Leu Pro  
65 70 75 80

Asp Thr Ser Arg Phe Arg Val Asn Ala Met Ile Gln Arg Gly Ala Thr  
85 90 95

Ala Leu Val Phe Arg Thr Ile Thr Ser Lys Ile Pro Lys Phe Glu Ser  
100 105 110

Leu Asn Leu Pro Pro Val Leu Lys Asp Val Ala Leu Lys Lys Arg Gly  
115 120 125

Leu Val Ile Phe Val Gly Gly Thr Gly Ser Gly Lys Ser Thr Ser Leu  
130 135 140

Ala Ser Leu Ile Asp Tyr Arg Asn Glu Asn Ser Phe Gly His Ile Ile  
145 150 155 160

Thr Ile Glu Asp Pro Ile Glu Phe Val His Glu His Lys Asn Cys Ile  
165 170 175

Ile Thr Gln Arg Glu Val Gly Val Asp Thr Glu Asn Trp Met Ala Ala  
180 185 190

Leu Lys Asn Thr Leu Arg Gln Ala Pro Asp Val Ile Leu Ile Gly Glu  
195 200 205

Ile Arg Asp Arg Glu Thr Met Asp Tyr Ala Ile Ala Phe Ala Glu Thr  
210 215 220

Gly His Leu Cys Met Ala Thr Leu His Ala Asn Ser Thr Asn Gln Ala  
225 230 235 240

Leu Asp Arg Ile Ile Asn Phe Phe Pro Glu Glu Arg Arg Glu Gln Leu  
245 250 255

Leu Thr Asp Leu Ser Leu Asn Leu Gln Ala Phe Ile Ser Gln Arg Leu  
260 265 270

Val Pro Arg Asp Gly Gly Lys Gly Arg Val Ala Ala Val Glu Val Leu  
275 280 285

Leu Asn Ser Pro Leu Ile Ser Glu Leu Ile His Asn Gly Asn Ile His

290

295

300

Glu Ile Lys Glu Val Met Lys Lys Ser Thr Thr Leu Gly Met Gln Thr  
305 310 315 320

Phe Asp Gln His Leu Tyr Gln Leu Tyr Glu Lys Gly Asp Ile Ser Leu  
325 330 335

Gln Glu Ala Leu Lys Asn Ala Asp Ser Ala His Asp Leu Arg Leu Ala  
340 345 350

Val Gln Leu Arg Ser Arg Arg Ala Gln Ser Xaa Ser Pro Asp Leu Xaa  
355 360 365

Leu Leu  
370

&lt;210&gt; 1113

&lt;211&gt; 1113

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1113

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atgaccgcaa aggaagaact gttcgcatgg ctgcgccata tgaacaaaaa caaagggttcc 60
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atcacggacg aaccgctgac ggcggaaaaa tgtatggaaa tcgccttttc gattatgagt 180
gcgaagcagg cggaagaatt ttcacgcacc aacgagtgca acttcgccat cagtctgccg 240
gacaccagcc gcttcgcggt caatgcgatg atacagcgcg gtgcgacggc gttgggtattc 300
cgtgcgatta ccagcaagat tcccaagttt gaaagcctga acctgccgcc ggtcttgaag 360
gatgtcgcgc tgaaaaaacg cgggctgggt atttttgtcg gcggcaccgg ctcgggcaaa 420
tcgacttcgc ttgcctcgct tatcgactac cgcaatgaaa attcgctcgg acacatcatc 480
accatcgaag acccgatcga gtttgtccac gaacacaaaa actgcatcat caccagcgcg 540
gaggtcggcg tggatacggg aaactggatg gcggcggtga aaaacacgct gcgtcaggca 600
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ctcgaccgca tcatcaactt tttcccgcgag gagcggcgcg aacaattgct gacggatttg 780
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ggcaatatcc atgaaatcaa agaagtgatg aaaaaatcca ctaccctggg tatgcagact 960
ttcgaccaac acctttacca attgtatgaa aaaggcgaga tttccttgca ggatgccttg 1020
aaaaatgccg attccgcaca cgatttgctg ttggcggtac agttgcgcag ccgccaggcg 1080
caaagttccg gtcccgatit ggaactgctc tga 1113

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&lt;210&gt; 1114

&lt;211&gt; 370

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1114

Met Thr Ala Lys Glu Glu Leu Phe Ala Trp Leu Arg His Met Asn Lys  
1 5 10 15

Asn Lys Gly Ser Asp Leu Phe Val Thr His Phe Pro Pro Ala Met  
20 25 30



Lys Leu Asp Gly Lys Ile Thr Arg Ile Thr Asp Glu Pro Leu Thr Ala  
 35 40 45  
 Glu Lys Cys Met Glu Ile Ala Phe Ser Ile Met Ser Ala Lys Gln Ala  
 50 55 60  
 Glu Glu Phe Ser Ser Thr Asn Glu Cys Asn Phe Ala Ile Ser Leu Pro  
 65 70 75 80  
 Asp Thr Ser Arg Phe Arg Val Asn Ala Met Ile Gln Arg Gly Ala Thr  
 85 90 95  
 Ala Leu Val Phe Arg Ala Ile Thr Ser Lys Ile Pro Lys Phe Glu Ser  
 100 105 110  
 Leu Asn Leu Pro Pro Val Leu Lys Asp Val Ala Leu Lys Lys Arg Gly  
 115 120 125  
 Leu Val Ile Phe Val Gly Gly Thr Gly Ser Gly Lys Ser Thr Ser Leu  
 130 135 140  
 Ala Ser Leu Ile Asp Tyr Arg Asn Glu Asn Ser Phe Gly His Ile Ile  
 145 150 155 160  
 Thr Ile Glu Asp Pro Ile Glu Phe Val His Glu His Lys Asn Cys Ile  
 165 170 175  
 Ile Thr Gln Arg Glu Val Gly Val Asp Thr Glu Asn Trp Met Ala Ala  
 180 185 190  
 Leu Lys Asn Thr Leu Arg Gln Ala Pro Asp Val Ile Leu Ile Gly Glu  
 195 200 205  
 Ile Arg Asp Arg Glu Thr Met Asp Tyr Ala Ile Ala Phe Ala Glu Thr  
 210 215 220  
 Gly His Leu Cys Met Ala Thr Leu His Ala Asn Ser Thr Asn Gln Ala  
 225 230 235 240  
 Leu Asp Arg Ile Ile Asn Phe Phe Pro Glu Glu Arg Arg Glu Gln Leu  
 245 250 255  
 Leu Thr Asp Leu Ser Leu Asn Leu Gln Ala Phe Ile Ser Gln Arg Leu  
 260 265 270  
 Val Pro Arg Asp Gly Gly Lys Gly Arg Val Ala Ala Val Glu Val Leu  
 275 280 285  
 Leu Asn Ser Pro Leu Ile Ser Glu Leu Ile His Asn Gly Asn Ile His  
 290 295 300  
 Glu Ile Lys Glu Val Met Lys Lys Ser Thr Thr Leu Gly Met Gln Thr  
 305 310 315 320  
 Phe Asp Gln His Leu Tyr Gln Leu Tyr Glu Lys Gly Glu Ile Ser Leu  
 325 330 335

Gln Asp Ala Leu Lys Asn Ala Asp Ser Ala His Asp Leu Arg Leu Ala  
340 345 350

Val Gln Leu Arg Ser Arg Gln Ala Gln Ser Ser Gly Pro Asp Leu Glu  
355 360 365

Leu Leu  
370

<210> 1115

<211> 516

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1115

atgagtcttc aggcggtatt tatatacccc ccaagccgta ccgcacaata caacgaaaat 60  
caggaaaacg gcggtaaagc tcataaacag ggacaaagcg gcaaacacac cgaccgccgt 120  
caggatatag gcgtattcga ggcoggaact ccattcaccg ttttcctgcc gtttcttgtc 180  
gcttttgaaa taaaggatga tgccggcaag cagcgcggca gccgcgccg acattggcat 240  
tgtgttcatt gttgttcctt aacggttaaa aaccgcgccg gccgtgcaac cgttttaagg 300  
cgggaaattg caaaatttgt ttgcgggccc gtgccgctga aatcaaggcg gtttgagaag 360  
tgtttconac gcgcccgcgc tatgtgccga aatattatgt gtcgctcacc tgcaaaatcg 420  
ccaagaacgc gctttgcgga atttcacagt tgcccacttg tttcatcagg cgtttgccctg 480  
ctttttgttt ttcaagcagt tttttcttac gcgtaa 516

<210> 1116

<211> 171

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1116

Met Ser Leu Gln Ala Val Phe Ile Tyr Pro Pro Ser Arg Thr Ala Gln  
1 5 10 15

Tyr Asn Glu Asn Gln Glu Asn Gly Gly Lys Ala His Lys Gln Gly Gln  
20 25 30

Ser Gly Lys His Thr Asp Arg Arg Gln Asp Ile Gly Val Phe Glu Ala  
35 40 45

Gly Thr Pro Phe Thr Val Phe Leu Pro Phe Leu Val Ala Phe Glu Ile  
50 55 60

Lys Asp Asp Ala Gly Lys Gln Arg Gly Ser Arg Ala Arg His Trp His  
65 70 75 80

Cys Val His Cys Cys Ser Leu Thr Val Lys Asn Pro Pro Gly Arg Ala  
85 90 95

Thr Val Leu Arg Arg Glu Ile Ala Lys Phe Val Cys Gly Arg Val Pro  
100 105 110

Leu Lys Ser Arg Arg Phe Glu Lys Cys Phe Xaa Arg Ala Arg Pro Met  
115 120 125

Cys Arg Asn Ile Ile Cys Arg Ser Pro Ala Lys Ser Pro Arg Thr Arg  
130 135 140

Phe Ala Glu Phe Pro Arg Cys Pro Leu Val Ser Tyr Gly Val Cys Leu  
145 150 155 160

Leu Phe Val Phe Gln Ala Val Phe Ser Tyr Ala  
165 170

<210> 1117

<211> 513

<212> DNA

<213> Neisseria meningitidis

<400> 1117

atgagtcttc aggcggtatt tatatacccm ccaagccgta ccgcacaata caacgaaaat 60  
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caggatatag gcgtattcaa ggccggaact ccattccccg ttttcctgcc gcttcttgtc 180  
gcttttgaaa taaaggatga tgccggcaag cagcgcgga ggcgcgccg acattagcat 240  
tgtgttcatt gttgttcctt aatgcttaaa aaccgcctg tccgtgcaac cgttttaagg 300  
cggcaaattg caaaatttgt ttgcgggcgc gtgcccctga aatcagggcg gtttgagggg 360  
tgttcccgac gcgccgcctt gtgtgccgga gttatttgtc gctcacctgc aaaatcgcca 420  
agaacgcgct ttgcggaatt tccacattgc ccacttgttt catacggcgt ttacctgcct 480  
tttgtkwtc aagcagtttt ttcttacgcg taa 513

<210> 1118

<211> 169

<212> PRT

<213> Neisseria meningitidis

<400> 1118

Met Ser Leu Gln Ala Val Phe Ile Tyr Pro Pro Ser Arg Thr Ala Gln  
1 5 10 15

Tyr Asn Glu Asn Gln Glu Asn Gly Gly Lys Ala His Lys Gln Gly Gln  
20 25 30

Ser Gly Lys His Ala Asp Arg Cys Gln Asp Ile Gly Val Phe Lys Ala  
35 40 45

Gly Thr Pro Phe Pro Val Phe Leu Pro Leu Leu Val Ala Phe Glu Ile  
50 55 60

Lys Asp Asp Ala Gly Lys Gln Arg Gly Ser Arg Ala Arg His His Cys  
65 70 75 80

Val His Cys Cys Ser Leu Met Leu Lys Asn Pro Pro Val Arg Ala Thr  
85 90 95

Val Leu Arg Arg Gln Ile Ala Lys Phe Val Cys Gly Arg Val Pro Leu  
100 105 110

Lys Ser Gly Arg Phe Glu Gly Cys Ser Arg Arg Ala Ala Leu Cys Ala  
115 120 125

Gly Val Ile Cys Arg Ser Pro Ala Lys Ser Pro Arg Thr Arg Phe Ala  
130 135 140

Glu Phe Pro His Cys Pro Leu Val Ser Tyr Gly Val Tyr Leu Pro Phe  
145 150 155 160

Val Xaa Gln Ala Val Phe Ser Tyr Ala  
165

<210> 1119

<211> 513

<212> DNA

<213> Neisseria meningitidis

<400> 1119

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caggatatag gcgtattcca gaccggaact ccattcaccg ttttcctgcc gctttttgtc 180  
gcttttgaaa taaaggatga tgccggcaag cagcgcggca gccgcgccc acattagcat 240  
aatgttcatt gttgttcctt aacggttaaa aaccgcccc tccgtgcaac cgtttttaag 300  
aggcggtaaa tcacaaagtt tgttggcggc cgtgctctct tacaatcagg gcggtttaag 360  
gggcatgatg cactgccccg tgtgccggat attatttgtc gctcacctgc aaaattgcc 420  
agaacgcgct ttgcgggatt tccacattgc ccacttggtt catacggcgt ttgcctgctt 480  
tttgtttttc aagcagtttt ttcttacgcg taa 513

<210> 1120

<211> 168

<212> PRT

<213> Neisseria meningitidis

<400> 1120

Met Ser Leu Gln Ala Val Phe Val Tyr Pro Pro Ser Arg Thr Ala Gln  
1 5 10 15

Tyr Asn Glu Asn Gln Glu Asn Gly Gly Lys Ala His Lys Gln Gly Gln  
20 25 30

Ser Gly Lys His Ala Asp Arg Arg Gln Asp Ile Gly Val Phe Gln Thr  
35 40 45

Gly Thr Pro Phe Thr Val Phe Leu Pro Leu Phe Val Ala Phe Glu Ile  
50 55 60

Lys Asp Asp Ala Gly Lys Gln Arg Gly Ser Arg Ala Arg His His Asn  
65 70 75 80

Val His Cys Cys Ser Leu Thr Val Lys Asn Pro Pro Val Arg Ala Thr  
85 90 95

Val Phe Lys Arg Arg Ile Thr Lys Phe Val Gly Gly Arg Ala Leu Leu  
100 105 110

Gln Ser Gly Arg Phe Lys Gly His Asp Ala Leu Pro Arg Val Pro Asp  
115 120 125

Ile Ile Cys Arg Ser Pro Ala Lys Leu Pro Arg Thr Arg Phe Ala Gly  
130 135 140

Phe Pro His Cys Pro Leu Val Ser Tyr Gly Val Cys Leu Leu Phe Val  
145 150 155 160

Phe Gln Ala Val Phe Ser Tyr Ala  
165

<210> 1121

<211> 492

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1121

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cttcatcggg atgaagaagc cgtcagacgg catatcgggg tgcaggtcct catttctccc 180
gatatgaatg cggcaaaagt gtttgtcggc ggcgagtttg acggcaaaca gcctttgaac 240
ctgctgctga tgcacccgac ccgcaaggcg gacgatcaaa ccgtcgccct caagcccgtc 300
ggcagcgcgc agaacggcag ggcggaatat gaggcggtgt tcaaaacctt tccgcgggcc 360
aaccactggt atgtgcgcgt ggaggacgcg gcaggcggtgt ggcgcgctga gaacaaatgg 420
attaccagcc agggcaatgc ggtcgatttg accccgatgg acaaactttt caataatgca 480
ggaagcaaat aa 492
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<210> 1122

<211> 163

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1122

Met Ala Gly Pro Ile Phe Val Val Ile Ala Ser Val Ala Met Phe Phe  
1 5 10 15

Val Ala Gln Gln His Ala Thr Asp Leu Val Thr Asp Asp Tyr Tyr Lys  
20 25 30

Asp Gly Lys His Ile Asp Ile Gln Leu His Arg Asp Glu Glu Ala Val  
35 40 45

Arg Arg His Ile Gly Val Gln Val Leu Ile Ser Pro Asp Met Asn Ala  
50 55 60

Ala Lys Val Phe Val Gly Gly Glu Phe Asp Gly Lys Gln Pro Leu Asn  
65 70 75 80

Leu Leu Leu Met His Pro Thr Arg Lys Ala Asp Asp Gln Thr Val Ala  
85 90 95

Leu Lys Pro Val Gly Ser Ala Gln Asn Gly Arg Ala Glu Tyr Glu Ala  
100 105 110

Val Phe Lys Thr Leu Pro Pro Ala Asn His Trp Tyr Val Arg Val Glu  
115 120 125

Asp Ala Ala Gly Val Trp Arg Val Glu Asn Lys Trp Ile Thr Ser Gln  
 130 135 140

Gly Asn Ala Val Asp Leu Thr Pro Met Asp Lys Leu Phe Asn Asn Ala  
 145 150 155 160

Gly Ser Lys

<210> 1123  
 <211> 492  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1123  
 atggcggggc cgatttttgt cgtcatcgcc agcgtcgcta tgttttttgt cgcgcagcag 60  
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 cttcatcggg atgaagaagc cgtcagacgg catatcgggg tgcaggttct catttcccc 180  
 gatatgaatg cggcaaaagt gtttgtcggc ggcgagtttg acggcaaaca gcctttgaac 240  
 ctgctgctga tgcacccgac ccgcaaggcg gacgatcaaa ccgtcgccct caagcccgtc 300  
 ggcagcgcgc agaacggcag ggcggaatat gaggcggtgt tcaaaaccct ttcgccgacc 360  
 aaccactggt atgtgcgcgt ggaggacgcg gcaggcggtgt ggcgcgctcga gaacaaatgg 420  
 attaccagcc aaggcaatgc ggtcgatttg accccgatgg acaagctttt caataatact 480  
 gaaagcaaat aa 492

<210> 1124  
 <211> 163  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1124  
 Met Ala Gly Pro Ile Phe Val Val Ile Ala Ser Val Ala Met Phe Phe  
 1 5 10 15  
 Val Ala Gln Gln His Ala Thr Asp Leu Val Thr Asp Asp Tyr Tyr Lys  
 20 25 30  
 Asp Gly Lys His Ile Asp Ile Gln Leu His Arg Asp Glu Glu Ala Val  
 35 40 45  
 Arg Arg His Ile Gly Val Gln Val Leu Ile Ser Pro Asp Met Asn Ala  
 50 55 60  
 Ala Lys Val Phe Val Gly Gly Glu Phe Asp Gly Lys Gln Pro Leu Asn  
 65 70 75 80  
 Leu Leu Leu Met His Pro Thr Arg Lys Ala Asp Asp Gln Thr Val Ala  
 85 90 95  
 Leu Lys Pro Val Gly Ser Ala Gln Asn Gly Arg Ala Glu Tyr Glu Ala  
 100 105 110  
 Val Phe Lys Thr Leu Ser Pro Thr Asn His Trp Tyr Val Arg Val Glu  
 115 120 125

Asp Ala Ala Gly Val Trp Arg Val Glu Asn Lys Trp Ile Thr Ser Gln  
 130 135 140

Gly Asn Ala Val Asp Leu Thr Pro Met Asp Lys Leu Phe Asn Asn Thr  
 145 150 155 160

Glu Ser Lys

<210> 1125

<211> 492

<212> DNA

<213> Neisseria meningitidis

<400> 1125

atggcggggc cgatttttgt cgtcatcgcc agcgtcgcta tgttttttgt cgcgcagcag 60  
 cacgcgacag atttggttac ggacgattat tataaagacg gcaagcatat cgacatccag 120  
 cttcatcggg atgaagaagc cgtcagacgg catatcgggg tgcaggttct catttcccc 180  
 gatatgaatg cggcaaaagt gtttgcggc ggcgagtttg acggcaaaca gcctttgaac 240  
 ctgctgctga tgcacccgac ccgcaaggcg gacgatcaaa ccgtcgccct caagcccgtc 300  
 ggcagcgcgc agaacggcag ggcggaatat gaggcggtgt tcaaaaccct ttcgccgacc 360  
 aaccactggt atgtgcgcgt ggaggacgcg gcaggcgtgt ggcgcgtcga gaacaaatgg 420  
 attaccagcc aaggcaatgc ggtcgatttg accccgatgg acaaactttt caataatact 480  
 gaaagcaaat aa 492

<210> 1126

<211> 163

<212> PRT

<213> Neisseria meningitidis

<400> 1126

Met Ala Gly Pro Ile Phe Val Val Ile Ala Ser Val Ala Met Phe Phe  
 1 5 10 15  
 Val Ala Gln Gln His Ala Thr Asp Leu Val Thr Asp Asp Tyr Tyr Lys  
 20 25 30  
 Asp Gly Lys His Ile Asp Ile Gln Leu His Arg Asp Glu Glu Ala Val  
 35 40 45  
 Arg Arg His Ile Gly Val Gln Val Leu Ile Ser Pro Asp Met Asn Ala  
 50 55 60  
 Ala Lys Val Phe Val Gly Gly Glu Phe Asp Gly Lys Gln Pro Leu Asn  
 65 70 75 80  
 Leu Leu Leu Met His Pro Thr Arg Lys Ala Asp Asp Gln Thr Val Ala  
 85 90 95  
 Leu Lys Pro Val Gly Ser Ala Gln Asn Gly Arg Ala Glu Tyr Glu Ala  
 100 105 110  
 Val Phe Lys Thr Leu Ser Pro Thr Asn His Trp Tyr Val Arg Val Glu  
 115 120 125

Asp Ala Ala Gly Val Trp Arg Val Glu Asn Lys Trp Ile Thr Ser Gln  
 130 135 140

Gly Asn Ala Val Asp Leu Thr Pro Met Asp Lys Leu Phe Asn Asn Thr  
 145 150 155 160

Glu Ser Lys

<210> 1127

<211> 837

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1127

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atgattttgc cgccatccat gacgatgatg cggtcggcgg attcgacggt ggtcaggcgg 60
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cgttcggatt cgttgtccaa tgcgctggtg gcttcgtcca ataataatat cggcgcgtct 180
ttcaaaatgg cgcgggcgat ggcgacgcgt tgccgctgtc cgccggataa gttgctgccg 240
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gcggtttgga gggcggacag gacttcggct tcgcccgcgt cgggacggct gtatcggacg 360
ttttcaaaca ggggtgtcgtc aaacaggaat acgtcttggg agacgagggc gaattgggcg 420
cgcaggcagt cgagtttgat gtcggcgatg tcgataccgt ctatgcagat gttgccggca 480
gacggttcga caaagcgggg cagaaggttg acgacggttg atttgccgct gccggaacgt 540
ccgaccaggg cgacgcgttc gccttgtctg atgtcgaggt tgaagttgtc gagggctttg 600
atgccgtctg aacggtattc gacatcgacg ttgcggaagc tgatgcgccc ttcgacacgc 660
tgcggcgcga gcgtgccttt gtcctgttcg ggcggggtgt cgagaaatgc acatacgccg 720
tcggcggcga ggaacatcgt ctgcataagg atgctgatgt tggcaaggct tttgatgggg 780
cggtacatth gcagcatcgc gacgatgaat gccataaatt cgccgatggt ggtgtag 837

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<210> 1128

<211> 278

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1128

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Met Ile Leu Pro Pro Ser Met Thr Met Met Arg Ser Ala Asp Ser Thr
  1             5             10             15

Val Val Arg Arg Trp Ala Thr Met Met Pro Val Arg Phe Ser Ile Arg
  20             25             30

Arg Ser Ser Ala Cys Trp Thr Arg Arg Ser Asp Ser Leu Ser Asn Ala
  35             40             45

Leu Val Ala Ser Ser Asn Asn Asn Ile Gly Ala Ser Phe Lys Met Ala
  50             55             60

Arg Ala Met Ala Thr Arg Cys Arg Cys Pro Pro Asp Lys Leu Leu Pro
  65             70             75             80

Phe Asp Pro Met Gly Trp Cys Ser Pro Ser Gly Asp Ala Ser Ile Arg
             85             90             95

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Leu Cys Arg Leu Ala Ala Trp Arg Ala Asp Arg Thr Ser Ala Ser Pro  
 100 105 110  
 Ala Ser Gly Arg Leu Tyr Arg Thr Phe Ser Asn Arg Val Ser Ser Asn  
 115 120 125  
 Arg Asn Thr Ser Trp Glu Thr Arg Ala Asn Trp Ala Arg Arg Gln Ser  
 130 135 140  
 Ser Leu Met Ser Ala Met Ser Ile Pro Ser Met Gln Met Leu Pro Ala  
 145 150 155 160  
 Asp Gly Ser Thr Lys Arg Gly Arg Arg Leu Thr Thr Val Asp Leu Pro  
 165 170 175  
 Leu Pro Glu Arg Pro Thr Arg Ala Thr Arg Ser Pro Cys Leu Met Ser  
 180 185 190  
 Arg Leu Lys Leu Ser Arg Ala Leu Met Pro Ser Glu Arg Tyr Ser Thr  
 195 200 205  
 Ser Thr Leu Arg Lys Leu Met Arg Pro Ser Thr Arg Cys Gly Ala Ser  
 210 215 220  
 Val Pro Leu Ser Cys Ser Gly Gly Val Ser Arg Asn Ala His Thr Pro  
 225 230 235 240  
 Ser Ala Ala Arg Asn Ile Val Cys Ile Gly Met Leu Met Leu Ala Arg  
 245 250 255  
 Leu Leu Met Gly Ala Tyr Ile Cys Ser Ile Ala Thr Met Asn Ala Ile  
 260 265 270  
 Asn Ser Pro Met Val Val  
 275

<210> 1129

<211> 837

<212> DNA

<213> Neisseria meningitidis

<400> 1129

atgattttgc cgctgctccat cacgatgatg cggtcggccc ctctgatggt ggtcaggcgg 60  
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 cgttcggatt cgttgtctaa tgcgctggtg gcttcgtcca ataataatat cggcgcgtct 180  
 ttcaaaatgg cgcgggcaat ggcgacgcgt tgccgctgtc cgccggataa gttgctgccg 240  
 ttcatccga tgggctggtg cagtccgagc ggggagctgt caatcaggct ttgcagggtt 300  
 gcggtttgga gggcgaacag gacttcggct tcgcccgcgt cgggacggct gtatcggaac 360  
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 cgcaggcagt cgagtttgat gtcggcgatg tcgataccgt ctatgcagat gttgccggca 480  
 gacggttcga caaagcgggg cagcagggtg acgacgggtg atttgccgct gccggaacgt 540  
 ccgaccaggg cgacgcgttc gccttgtctg atgtcgaggt tgaagtgtc gagggctttg 600  
 atgccgtctg aacgggtatt gacatcgacg ttgcggaagc tgatgcgccc ttcgacacgc 660  
 tgcggtgcga gcgtgccctt gtccgtgttc ggccggggtg cgagaaatgc acatacaccg 720  
 tcggcggcga ggaacatcgt ctgcataggg atgctgatgt tggcaaggct tttgatgggg 780  
 gcgtacattt gcagcatcgc gacgatgaat gccataaatt cgccgatggt ggtgtag 837

<210> 1130

<211> 278

<212> PRT

<213> *Neisseria meningitidis*

<400> 1130

Met Ile Leu Pro Ser Ser Ile Thr Met Met Arg Ser Ala Pro Ser Met  
1 5 10 15

Val Val Arg Arg Trp Ala Thr Met Met Pro Val Arg Phe Ser Ile Arg  
20 25 30

Arg Ser Ser Ala Cys Trp Thr Arg Arg Ser Asp Ser Leu Ser Asn Ala  
35 40 45

Leu Val Ala Ser Ser Asn Asn Asn Ile Gly Ala Ser Phe Lys Met Ala  
50 55 60

Arg Ala Met Ala Thr Arg Cys Arg Cys Pro Pro Asp Lys Leu Leu Pro  
65 70 75 80

Phe Asp Pro Met Gly Trp Cys Ser Pro Ser Gly Glu Leu Ser Ile Arg  
85 90 95

Leu Cys Arg Leu Ala Val Trp Arg Ala Asn Arg Thr Ser Ala Ser Pro  
100 105 110

Ala Ser Gly Arg Leu Tyr Arg Thr Phe Ser Asn Arg Val Ser Ser Asn  
115 120 125

Arg Asn Thr Ser Trp Glu Thr Arg Ala Asn Trp Ala Arg Arg Gln Ser  
130 135 140

Ser Leu Met Ser Ala Met Ser Ile Pro Ser Met Gln Met Leu Pro Ala  
145 150 155 160

Asp Gly Ser Thr Lys Arg Gly Ser Arg Leu Thr Thr Val Asp Leu Pro  
165 170 175

Leu Pro Glu Arg Pro Thr Arg Ala Thr Arg Ser Pro Cys Leu Met Ser  
180 185 190

Arg Leu Lys Leu Ser Arg Ala Leu Met Pro Ser Glu Arg Tyr Ser Thr  
195 200 205

Ser Thr Leu Arg Lys Leu Met Arg Pro Ser Thr Arg Cys Gly Ala Ser  
210 215 220

Val Pro Leu Ser Cys Ser Gly Gly Val Ser Arg Asn Ala His Thr Pro  
225 230 235 240

Ser Ala Ala Arg Asn Ile Val Cys Ile Gly Met Leu Met Leu Ala Arg  
245 250 255

Leu Leu Met Gly Ala Tyr Ile Cys Ser Ile Ala Thr Met Asn Ala Ile

260

265

270

Asn Ser Pro Met Val Val  
275

&lt;210&gt; 1131

&lt;211&gt; 837

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1131

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tgggcgacga tgatgccggg gcggttttcc atcaggcggt cgagcgccg ttggacgagg 120
cgttcggatt cgttgtccaa tgcgctgggt gcttcgtcca ataataatat cggcgcgtct 180
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tgcggtgcga gcgtgccttt gtccgtgtcg ggcgggggtg cgagaaatgc acatacgccg 720
tcggcggcga ggaacatcgt ctgcataggg atgctaagt tggcaaggct tttgatgggg 780
gcgtacattt gcagcatcgc gacgatgaat gccataaatt cgccgatggt ggtgtag 837

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&lt;210&gt; 1132

&lt;211&gt; 278

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1132

Met Ile Leu Pro Ser Ser Ile Thr Met Met Arg Ser Ala Pro Ser Met  
1 5 10 15

Val Val Arg Arg Trp Ala Thr Met Met Pro Val Arg Phe Ser Ile Arg  
20 25 30

Arg Ser Ser Ala Cys Trp Thr Arg Arg Ser Asp Ser Leu Ser Asn Ala  
35 40 45

Leu Val Ala Ser Ser Asn Asn Asn Ile Gly Ala Ser Phe Lys Met Ala  
50 55 60

Arg Ala Met Ala Thr Arg Cys Arg Cys Pro Pro Asp Lys Leu Leu Pro  
65 70 75 80

Phe Asp Pro Met Gly Trp Cys Ser Pro Ser Gly Asp Ala Ser Ile Arg  
85 90 95

Leu Cys Arg Leu Ala Ala Trp Arg Ala Asp Arg Thr Ser Ala Ser Pro  
100 105 110

Ala Ser Gly Arg Leu Tyr Arg Thr Phe Ser Asn Arg Val Ser Ser Asn  
115 120 125

Arg Asn Thr Ser Trp Glu Thr Arg Ala Asn Trp Ala Arg Arg Gln Ser  
 130 135 140  
 Ser Leu Met Ser Ala Met Ser Ile Pro Ser Met Gln Met Leu Pro Ala  
 145 150 155 160  
 Asp Gly Ser Thr Lys Arg Gly Ser Arg Leu Thr Thr Val Asp Leu Pro  
 165 170 175  
 Leu Pro Glu Arg Pro Thr Arg Ala Thr Arg Ser Pro Cys Leu Met Ser  
 180 185 190  
 Arg Leu Lys Pro Ser Arg Ala Leu Met Pro Ser Glu Arg Tyr Ser Thr  
 195 200 205  
 Ser Thr Leu Arg Lys Leu Met Arg Pro Ser Thr Arg Cys Gly Ala Ser  
 210 215 220  
 Val Pro Leu Ser Cys Ser Gly Gly Val Ser Arg Asn Ala His Thr Pro  
 225 230 235 240  
 Ser Ala Ala Arg Asn Ile Val Cys Ile Gly Met Leu Met Leu Ala Arg  
 245 250 255  
 Leu Leu Met Gly Ala Tyr Ile Cys Ser Ile Ala Thr Met Asn Ala Ile  
 260 265 270  
 Asn Ser Pro Met Val Val  
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<210> 1133  
 <211> 669  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 1133  
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 gccgagtacg ggcgtgcaat cgataccgcc gacttggttg aaataggtaa actgggttac 180  
 ttccatgccg ttgagccaga cttcccagcc caaacccac gcaccgaggg tgggggtttc 240  
 ccagtcgtct tcgacaaagc ggatgtcgtg gactttggga tcgatgcca attcgcgcag 300  
 ggagtcgaga tagaggtctt ggatattggc gggggcgggt ttgagggcga cttggaattg 360  
 gtaatagtgt tgcaggcggg tgggggttgc gccgtagcgg ccgtctttgg ggcggcggct 420  
 gggttggacg taggcggcaa accaaggctc ggggccgagc gcgcgcaggc aggtggcggg 480  
 atgggatgtg ccggcaccca cttccatgtc gaagggttg atgacggtgc agcctttgtc 540  
 tgcccagaag gtttgcagtt tgaagatgat ttgttggaa gtaagcatgg cttattgttc 600  
 gataaaataa aggttttatt ttactgtttc catagccgct tgaatagatt tatctcgaag 660  
 acagcctga 669

<210> 1134  
 <211> 222  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 1134

Met Val His Val Ala Val Ala Tyr Gly Ile Ala Val Arg Arg Phe Cys  
1 5 10 15

Pro Asn Glu Val Ile Asp Val Phe His Ala Leu Gln Val His Arg Gln  
20 25 30

Ala Phe Asp Ala Val Gly Asn Phe Ala Glu Tyr Gly Arg Ala Ile Asp  
35 40 45

Thr Ala Asp Leu Leu Glu Ile Gly Lys Leu Gly Tyr Phe His Ala Val  
50 55 60

Glu Pro Asp Phe Pro Ala Gln Thr Pro Arg Thr Glu Gly Gly Val Phe  
65 70 75 80

Pro Val Val Phe Asp Lys Ala Asp Val Val Asp Phe Gly Ile Asp Ala  
85 90 95

Gln Phe Ala Gln Gly Val Glu Ile Glu Val Leu Asp Ile Gly Gly Gly  
100 105 110

Gly Phe Glu Gly Asp Leu Glu Leu Val Ile Val Leu Gln Ala Val Gly  
115 120 125

Val Val Ala Val Ala Ala Val Phe Gly Ala Ala Ala Gly Leu Asp Val  
130 135 140

Gly Gly Lys Pro Arg Leu Gly Ala Glu Arg Ala Gln Ala Gly Gly Gly  
145 150 155 160

Met Gly Cys Ala Gly Thr Asp Phe His Val Glu Gly Leu Asp Asp Gly  
165 170 175

Ala Ala Phe Val Cys Pro Glu Gly Leu Gln Phe Glu Asp Asp Leu Leu  
180 185 190

Glu Gly Lys His Gly Leu Leu Phe Asp Lys Ile Lys Val Leu Phe Tyr  
195 200 205

Cys Phe His Ser Arg Leu Asn Arg Phe Ile Ser Lys Thr Ala  
210 215 220

<210> 1135

<211> 759

<212> DNA

<213> Neisseria meningitidis

<400> 1135

atgccccgct ttgaggacaa gtcgtaggc aggcagggcg agggcggcgt tttcttcggc 60  
aagcaggcgt ttggcttgcg cttcgtagtc gttgaactgg cgcagcagcc agtcggcatc 120  
gctgtattcg aagttgtagg tggattgctc gacttcgttt tgggtgtaca cgtcgccgta 180  
ggtgacgggtg ttgccgtcga gcgttttttc ccaaacgagg tcgtagacgt tttctacacc 240  
ttgcaagtac atcgccaagc gttcgatgcc gtaggtgatt tcgccgagta cgggcgtgca 300  
gtcgatgccg ccgacttggt ggaaataggt aaactgggtt acttccatgc cgttgagcca 360

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gacttcccag cccaaacccc acgcgccgag ggtgggggttt tcccagtcgt cttcgacaaa 420
gcggatgtcg tggacttttg gatcgatgcc caattcgcgc agagagtcga gatagaggtc 480
ttggatattg gcgggagcgg gcttgagggc gacttggaat tggtaatagt gttgcaggcg 540
gttgggggttgc tgcgcgtagc ggccgtcttt ggggcggcgg ctgggttgga cgtaggcggc 600
aaaccaaggc tcggggccga gtgcgcgcag gcaggtggcg ggatgggatg tgccggcacc 660
gacttccatg tcgaagggtt ggatgacggt gcagcctttg tctgcccaga atgtttgcag 720
tttgaagatg atttgttgga aggtaagcat ggcttatga 759

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<210> 1136

<211> 252

<212> PRT

<213> Neisseria meningitidis

<400> 1136

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Met Pro Arg Phe Glu Asp Lys Leu Val Gly Arg Gln Gly Glu Gly Gly
  1              5              10              15

Val Phe Phe Gly Lys Gln Ala Phe Gly Leu Arg Phe Val Val Val Glu
      20              25              30

Leu Ala Gln Gln Pro Val Gly Ile Ala Val Phe Glu Val Val Gly Gly
      35              40              45

Leu Leu Asp Phe Val Leu Val Val His Val Ala Val Gly Asp Gly Val
      50              55              60

Ala Val Glu Arg Phe Cys Pro Asn Glu Val Val Asp Val Phe Tyr Thr
      65              70              75              80

Leu Gln Val His Arg Gln Ala Phe Asp Ala Val Gly Asp Phe Ala Glu
      85              90              95

Tyr Gly Arg Ala Val Asp Ala Ala Asp Leu Leu Glu Ile Gly Lys Leu
      100              105              110

Gly Tyr Phe His Ala Val Glu Pro Asp Phe Pro Ala Gln Thr Pro Arg
      115              120              125

Ala Glu Gly Gly Val Phe Pro Val Val Phe Asp Lys Ala Asp Val Val
      130              135              140

Asp Phe Gly Ile Asp Ala Gln Phe Ala Gln Arg Val Glu Ile Glu Val
      145              150              155              160

Leu Asp Ile Gly Gly Ser Gly Leu Glu Gly Asp Leu Glu Leu Val Ile
      165              170              175

Val Leu Gln Ala Val Gly Val Val Ala Val Ala Ala Val Phe Gly Ala
      180              185              190

Ala Ala Gly Leu Asp Val Gly Gly Lys Pro Arg Leu Gly Ala Glu Cys
      195              200              205

Ala Gln Ala Gly Gly Gly Met Gly Cys Ala Gly Thr Asp Phe His Val
      210              215              220

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Glu Gly Leu Asp Asp Gly Ala Ala Phe Val Cys Pro Glu Cys Leu Gln  
 225 230 235 240

Phe Glu Asp Asp Leu Leu Glu Gly Lys His Gly Leu  
 245 250

<210> 1137  
 <211> 759  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1137  
 atgccccgct ttgaggacaa gctcgtaggc aggcagggcg agggcgggcgt tttcttcggc 60  
 aagcaggcgt ttggcttgcg cttcgtagtc gttgaactgg cgcagcagcc aatcggcatac 120  
 gctgtattcg aagttgtagg tggattgttc gacttcgttt tgggtggtaca cgtcgccgta 180  
 agttactgta ttaccgtcca gcgtttttgc ccaaacgagg tcatagacgt tttccacgcc 240  
 ttgcagggtac atcgccaagc gttcgatgcc gtaggtgatt tcgcccagta cgggggtgca 300  
 gtcgatgccg ccgacttggt ggaaataggt gaactgggtt acttccatac cgttgagcca 360  
 gacttcccag cccaaacccc acgcgccgag ggtgggggtt tcccagtcgt cttcgacaaa 420  
 gcggatgtcg tgcactttgg ggtcgatgcc caattcgcgc agggagtcga gatagaggtc 480  
 ttggatattg gcgggagcgg gcttgagggc gacttggaat tggtaatagt gttgcaggcg 540  
 gttgggggtt tcgccgtagc gaccgtcttt ggggcggcgg ctgggttgga cgtaggcggc 600  
 aaaccaaggc tcggggccga gtgcgcgcag acaggtggcg ggatgggatg tgccggcacc 660  
 gacttccatg tcgaagggtt ggatgacggt gcagcctttg tctgcccaga atgtttgcag 720  
 tttgaagatg atttggttga aggtaagcat ggcttatga 759

<210> 1138  
 <211> 252  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1138  
 Met Pro Arg Phe Glu Asp Lys Leu Val Gly Arg Gln Gly Glu Gly Gly  
 1 5 10 15  
 Val Phe Phe Gly Lys Gln Ala Phe Gly Leu Arg Phe Val Val Val Glu  
 20 25 30  
 Leu Ala Gln Gln Pro Ile Gly Ile Ala Val Phe Glu Val Val Gly Gly  
 35 40 45  
 Leu Phe Asp Phe Val Leu Val Val His Val Ala Val Ser Tyr Cys Ile  
 50 55 60  
 Thr Val Gln Arg Phe Cys Pro Asn Glu Val Ile Asp Val Phe His Ala  
 65 70 75 80  
 Leu Gln Val His Arg Gln Ala Phe Asp Ala Val Gly Asp Phe Ala Glu  
 85 90 95  
 Tyr Gly Gly Ala Val Asp Ala Ala Asp Leu Leu Glu Ile Gly Glu Leu  
 100 105 110

Gly Tyr Phe His Thr Val Glu Pro Asp Phe Pro Ala Gln Thr Pro Arg

115	120	125
Ala Glu Gly Gly Val Phe Pro Val Val Phe Asp Lys Ala Asp Val Val		
130	135	140
His Phe Gly Val Asp Ala Gln Phe Ala Gln Gly Val Glu Ile Glu Val		
145	150	155
Leu Asp Ile Gly Gly Ser Gly Leu Glu Gly Asp Leu Glu Leu Val Ile		
	165	170
Val Leu Gln Ala Val Gly Val Val Ala Val Ala Thr Val Phe Gly Ala		
	180	185
Ala Ala Gly Leu Asp Val Gly Gly Lys Pro Arg Leu Gly Ala Glu Cys		
	195	200
Ala Gln Thr Gly Gly Gly Met Gly Cys Ala Gly Thr Asp Phe His Val		
	210	215
Glu Gly Leu Asp Asp Gly Ala Ala Phe Val Cys Pro Glu Cys Leu Gln		
225	230	235
Phe Glu Asp Asp Leu Leu Glu Gly Lys His Gly Leu		
	245	250

<210> 1139  
 <211> 512  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1139  
 ttgcgtgcaa tcacgcccgg tgcgattttt tcgacagggg cgggtcaaagt tgtattaatc 60  
 ggacctttgc cgtcgatagg ccgacccaat gcatcgacga cgcgtccgac caattcgcgt 120  
 ccgaccggca cttctaaaat acggccggta caggtaaccg tgcgccttc tttaatatgt 180  
 tcgtactcgc ccaacactac ggcaccgacg gagtcgcgct ccaggttcat cgccaagcct 240  
 aaagtgttac ccggaattc gagcatctca ccttgcatg catctgacaa accatggatg 300  
 cgaacgatac cgtcagttac cgaaatcacc gtaccacggg tactcacttc ggcatattaca 360  
 gacagatttt cgtccttggc tttaatcaga tcgctaattt cagcaggatt aagctgcatg 420  
 aaaactctcc taattcgta tagtcgtgta caaagcactc agtttgcctt gtacagacaa 480  
 atccaaaacc tgatcaccca cttcaacttt ta 512

<210> 1140  
 <211> 170  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1140  
 Leu Arg Ala Ile Thr Pro Gly Ala Ile Phe Ser Thr Gly Ala Val Lys  
 1 5 10 15  
 Val Val Leu Ile Gly Pro Leu Pro Ser Ile Gly Arg Pro Asn Ala Ser  
 20 25 30  
 Thr Thr Arg Pro Thr Asn Ser Arg Pro Thr Gly Thr Ser Lys Ile Arg



35	40	45
Pro Val Gln Val Thr Val Ser Pro Ser Leu Ile Cys Ser Tyr Ser Pro		
50	55	60
Asn Thr Thr Ala Pro Thr Glu Ser Arg Ser Arg Phe Ile Ala Lys Pro		
65	70	75
Lys Val Leu Pro Gly Asn Ser Ser Ile Ser Pro Cys Ile Ala Ser Asp		
	85	90
Lys Pro Trp Met Arg Thr Ile Pro Ser Val Thr Glu Ile Thr Val Pro		
	100	110
Arg Val Leu Thr Ser Ala Phe Thr Asp Arg Phe Ser Ile Leu Ala Leu		
	115	120
Ile Arg Ser Leu Ile Ser Ala Gly Leu Ser Cys Met Lys Thr Leu Leu		
	130	140
Ile Arg His Ser Arg Val Gln Ser Thr Gln Phe Ala Leu Tyr Arg Gln		
145	150	155
Ile Gln Asn Leu Ile Thr His Phe Asn Phe		
	165	170

<210> 1141  
 <211> 660  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1141  
 ttgcgcgcaa tcacgcccgg tgcgattttt tcgatagggg cgggtcaaagt tgtattaatc 60  
 gggccttttg cgtcgatagg ccgacccaat gcatcaacga cgcgtccgac cagttcgcgt 120  
 ccgaccggca cttccaagat acgaccggta caggtaaccg tgcgccttc tttaatgtgt 180  
 tcgtactcgc ccaacactac ggcgccgacg gagtcgcgct ccaggttcat cgccaagccg 240  
 aaagtgttac ccgggaattc gagcatctca ccttgcattg catctgacaa accatggatg 300  
 cgaacgatac cgtcagttac cgaaattacc gtaccacagg tacgcacttc ggcatattaca 360  
 gacagatttt cgatcttggc tttaatcaaa tcgctaattt cagcaggatt aagctgcatg 420  
 aaaactctcc taattcgtca tagtcgtgta caaggcactc aatttgcctt gtacagacaa 480  
 atccàaaacc tgatcaccca cttcaacttt tatgccgcca atcagctccg gttcgatttc 540  
 gacagagatt ttcagctcgc tgcgaaacg cttattcagc atttgacca actcgccgac 600  
 ctgtttgtcg gtcaacggat aggcactgta aatgacggca gatttgatat gggtgaatga 660

<210> 1142  
 <211> 219  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1142  
 Leu Arg Ala Ile Thr Pro Gly Ala Ile Phe Ser Ile Gly Ala Val Lys  
 1 5 10 15  
 Val Val Leu Ile Gly Pro Leu Pro Ser Ile Gly Arg Pro Asn Ala Ser  
 20 25 30

Thr Thr Arg Pro Thr Ser Ser Arg Pro Thr Gly Thr Ser Lys Ile Arg  
 35 40 45  
 Pro Val Gln Val Thr Val Ser Pro Ser Leu Met Cys Ser Tyr Ser Pro  
 50 55 60  
 Asn Thr Thr Ala Pro Thr Glu Ser Arg Ser Arg Phe Ile Ala Lys Pro  
 65 70 75 80  
 Lys Val Leu Pro Gly Asn Ser Ser Ile Ser Pro Cys Ile Ala Ser Asp  
 85 90 95  
 Lys Pro Trp Met Arg Thr Ile Pro Ser Val Thr Glu Ile Thr Val Pro  
 100 105 110  
 Gln Val Arg Thr Ser Ala Phe Thr Asp Arg Phe Ser Ile Leu Ala Leu  
 115 120 125  
 Ile Lys Ser Leu Ile Ser Ala Gly Leu Ser Cys Met Lys Thr Leu Leu  
 130 135 140  
 Ile Arg His Ser Arg Val Gln Gly Thr Gln Phe Ala Leu Tyr Arg Gln  
 145 150 155 160  
 Ile Gln Asn Leu Ile Thr His Phe Asn Phe Tyr Ala Ala Asn Gln Leu  
 165 170 175  
 Arg Phe Asp Phe Asp Arg Asp Phe Gln Leu Ala Val Glu Thr Leu Ile  
 180 185 190  
 Gln His Leu His Gln Leu Ala Asp Leu Phe Val Gly Gln Arg Ile Gly  
 195 200 205  
 Thr Val Asn Asp Gly Arg Phe Asp Met Val Glu  
 210 215

<210> 1143

<211> 660

<212> DNA

<213> Neisseria meningitidis

<400> 1143

ttgcgcgcaa tcacgcccgg tgcgattttt tcgatagggg cgggtcaaagt tgtattaatc 60  
 gggcctttgc cgtcgatagg ccgacccaat gcatcaacga cgcgtccgac cagttcgcgt 120  
 ccgaccggca cttccaagat acgaccggta caggtaaccg tgtcgccttc tttaatatgt 180  
 tcgtgctcgc ccaacactac ggcgcgacg gagtcgcgct ccaggttcat cgccaagccg 240  
 aaagtgttac ccgggaattc gagcatctca ccttgcatg catctgacaa accatggatg 300  
 cgaacgatac cgtcagttac cgaaatcacc gtaccacggg tacgcacttc ggcatttaca 360  
 gacagatttt cgatcttggc tttaatcaaa tcgctaattt cagcaggatt aagctgcatg 420  
 aaaactctcc taattcgtca tagtcgtgta caaggcactc aatttgccct gtacagacaa 480  
 atccaaaacc tgatcaccca cttcaacttt tatgccgcca atcagctccg gttcgatttc 540  
 gacagagatt ttcagctcgc tgtcgaaacg cttattcagc atttgccgcca actcgcgcgac 600  
 ctgtttgtcg gtcaacggat aggcaactgta aatgacggca gatttgatat ggttgaatga 660

<210> 1144  
<211> 219  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 1144  
Leu Arg Ala Ile Thr Pro Gly Ala Ile Phe Ser Ile Gly Ala Val Lys  
1 5 10 15  
Val Val Leu Ile Gly Pro Leu Pro Ser Ile Gly Arg Pro Asn Ala Ser  
20 25 30  
Thr Thr Arg Pro Thr Ser Ser Arg Pro Thr Gly Thr Ser Lys Ile Arg  
35 40 45  
Pro Val Gln Val Thr Val Ser Pro Ser Leu Ile Cys Ser Cys Ser Pro  
50 55 60  
Asn Thr Thr Ala Pro Thr Glu Ser Arg Ser Arg Phe Ile Ala Lys Pro  
65 70 75 80  
Lys Val Leu Pro Gly Asn Ser Ser Ile Ser Pro Cys Ile Ala Ser Asp  
85 90 95  
Lys Pro Trp Met Arg Thr Ile Pro Ser Val Thr Glu Ile Thr Val Pro  
100 105 110  
Arg Val Arg Thr Ser Ala Phe Thr Asp Arg Phe Ser Ile Leu Ala Leu  
115 120 125  
Ile Lys Ser Leu Ile Ser Ala Gly Leu Ser Cys Met Lys Thr Leu Leu  
130 135 140  
Ile Arg His Ser Arg Val Gln Gly Thr Gln Phe Ala Leu Tyr Arg Gln  
145 150 155 160  
Ile Gln Asn Leu Ile Thr His Phe Asn Phe Tyr Ala Ala Asn Gln Leu  
165 170 175  
Arg Phe Asp Phe Asp Arg Asp Phe Gln Leu Ala Val Glu Thr Leu Ile  
180 185 190  
Gln His Leu Arg Gln Leu Ala Asp Leu Phe Val Gly Gln Arg Ile Gly  
195 200 205  
Thr Val Asn Asp Gly Arg Phe Asp Met Val Glu  
210 215

<210> 1145  
<211> 459  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 1145  
atgacgcgga ttgcggtg cttgatttca acggttttga gtgtttcggc aagtttgtcg 60  
gcggcgggtt tcatcaggct gcaatgggaa ggaacggata ccggcagcgg cagggcgcgt 120

```

ttggctccgg cttctttggc ggcagccatg gtgcgtccga cggcggcggc gttgcctgca 180
atcacgactt gtccgggcga gttgaagttg acggcttcga ccacttcgcc ctgtgcggat 240
tcggcacaaa tctgcctgac ctgttcattc tccaaaccca aaatggccgc cattgcgcct 300
acgccttgcg gtacggcgga ctgcatcagt tcggcgcgca ggcggacgag tttgacggca 360
tcggcaaaat ccaatgcttc ggcggcgaca agcgcggtgt attcgccgag gctgtgtccg 420
gcaacggcgg caggcgtttt gccgcccact tccaaatag 459

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<210> 1146

<211> 152

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1146

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Met Thr Arg Ile Cys Gly Cys Leu Ile Ser Thr Val Leu Ser Val Ser
  1           5           10           15

```

```

Ala Ser Leu Ser Ala Ala Gly Phe Ile Arg Leu Gln Trp Glu Gly Thr
      20           25           30

```

```

Asp Thr Gly Ser Gly Arg Ala Arg Leu Ala Pro Ala Ser Leu Ala Ala
      35           40           45

```

```

Ala Met Val Arg Pro Thr Ala Ala Ala Leu Pro Ala Ile Thr Thr Cys
      50           55           60

```

```

Pro Gly Glu Leu Lys Leu Thr Ala Ser Thr Thr Ser Pro Cys Ala Asp
      65           70           75           80

```

```

Ser Ala Gln Ile Cys Leu Thr Cys Ser Ser Ser Lys Pro Lys Met Ala
      85           90           95

```

```

Ala Ile Ala Pro Thr Pro Cys Gly Thr Ala Asp Cys Ile Ser Ser Ala
      100          105          110

```

```

Arg Arg Arg Thr Ser Leu Thr Ala Ser Ala Lys Ser Asn Ala Ser Ala
      115          120          125

```

```

Ala Thr Ser Ala Val Tyr Ser Pro Arg Leu Cys Pro Ala Thr Ala Ala
      130          135          140

```

```

Gly Val Leu Pro Pro Thr Ser Lys
      145          150

```

<210> 1147

<211> 459

<212> DNA

<213> *Neisseria meningitidis*

<400> 1147

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ataacgcgga tttgcggctg cttgatttca acggttttca gggcttcggc aagtttgctg 60
gcggcggggt tcatcaggct gcaatgggaa ggtacggaca cgggcagcgg cagggcgcgt 120
ttggcaccgg cttctttggc ggcagccatg ggcggtccga cggcggcggc gttgcctgca 180
atcacgattt gtccgggtga gttgaagttg acggcttcga ccacttcgct ttgggcggct 240
tcggcacaaa tggctttaac ctgctcatct tccaagccga gaatcgccgc cattgcgccc 300

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acgccttgcg gtacggcgga ctgcatcagt tcggcgcgca ggcgacagag tttgaccgcg 360  
tcggcaaaat tcaatgcgcc ggcggaacg agtgcggtgt attcgccgag gctgtgtccg 420  
gcaacggcgg caggcgtttt gccgccgct tctaaatag 459

<210> 1148

<211> 152

<212> PRT

<213> *Neisseria meningitidis*

<400> 1148

Ile Thr Arg Ile Cys Gly Cys Leu Ile Ser Thr Val Phe Arg Ala Ser  
1 5 10 15

Ala Ser Leu Ser Ala Ala Gly Phe Ile Arg Leu Gln Trp Glu Gly Thr  
20 25 30

Asp Thr Gly Ser Gly Arg Ala Arg Leu Ala Pro Ala Ser Leu Ala Ala  
35 40 45

Ala Met Ala Arg Pro Thr Ala Ala Ala Leu Pro Ala Ile Thr Ile Cys  
50 55 60

Pro Gly Glu Leu Lys Leu Thr Ala Ser Thr Thr Ser Leu Trp Ala Ala  
65 70 75 80

Ser Ala Gln Met Ala Leu Thr Cys Ser Ser Ser Lys Pro Arg Ile Ala  
85 90 95

Ala Ile Ala Pro Thr Pro Cys Gly Thr Ala Asp Cys Ile Ser Ser Ala  
100 105 110

Arg Arg Arg Thr Ser Leu Thr Ala Ser Ala Lys Phe Asn Ala Pro Ala  
115 120 125

Ala Thr Ser Ala Val Tyr Ser Pro Arg Leu Cys Pro Ala Thr Ala Ala  
130 135 140

Gly Val Leu Pro Pro Ala Ser Lys  
145 150

<210> 1149

<211> 459

<212> DNA

<213> *Neisseria meningitidis*

<400> 1149

atgacncnga tttgcggctg cttgatttca acggttttna gggcttcggc gagtttgtcg 60  
gcggcggggt tcatgaggct gcaatgggaa ggtacngaca cnggcagcgg cagggcgcgt 120  
ttggcgccgg cttctttggc ggcaagcata gcgcgctcga cggcggcggc attgcctgca 180  
atcacgactt gtccggggca gttgaagttg acggcttcaa ccacttcatc ctgtgcggat 240  
tcggcgcaaa tttgttttac ctgttcatct tccaagccga gaatcgccgc cattgcgccc 300  
acgccttgcg gtacggcgga ctgcatcagt tcggcgcgca ngcgacagag tttgaccgcg 360  
tcggcaaaat ccaatgcgcc ggcggaacn agtgcggtgt attcgccgan gctgtgtccg 420  
gcaacggcgg caggcgtttt gccgccgct tccgaatag 459

<210> 1150  
 <211> 152  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1150  
 Met Thr Xaa Ile Cys Gly Cys Leu Ile Ser Thr Val Xaa Arg Ala Ser  
   1                  5                  10                  15  
 Ala Ser Leu Ser Ala Ala Gly Phe Met Arg Leu Gln Trp Glu Gly Thr  
           20                  25                  30  
 Asp Thr Gly Ser Gly Arg Ala Arg Leu Ala Pro Ala Ser Leu Ala Ala  
           35                  40                  45  
 Ser Ile Ala Arg Ser Thr Ala Ala Ala Leu Pro Ala Ile Thr Thr Cys  
           50                  55                  60  
 Pro Gly Glu Leu Lys Leu Thr Ala Ser Thr Thr Ser Ser Cys Ala Asp  
           65                  70                  75                  80  
 Ser Ala Gln Ile Cys Phe Thr Cys Ser Ser Ser Lys Pro Arg Ile Ala  
                   85                  90                  95  
 Ala Ile Ala Pro Thr Pro Cys Gly Thr Ala Asp Cys Ile Ser Ser Ala  
           100                  105                  110  
 Arg Xaa Arg Thr Ser Leu Thr Ala Ser Ala Lys Ser Asn Ala Pro Ala  
           115                  120                  125  
 Ala Thr Ser Ala Val Tyr Ser Pro Xaa Leu Cys Pro Ala Thr Ala Ala  
           130                  135                  140  
 Gly Val Leu Pro Pro Ala Ser Glu  
   145                  150

<210> 1151  
 <211> 927  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 1151  
 atgaaacacc tcaaacttac ctttattgcc gcattgctgg ccaccgccgc aactgccgca 60  
 ccccttcggg ttgtaaccag tttcagcatt ttaggcgacg tagccaaaca aatcggcggt 120  
 gagcgcgtag ccgtacaaag cctcgtcgga gccaaccaag atactcatgc ctatcacatg 180  
 accagtggcg acattaaaaa aatccgcagt gcaaaactcg tctgtctcaa cggtttggga 240  
 cttgaagccg ccgacatcca acgcgccgtc aaacagagca aagtatccta tgccgaagcg 300  
 accaaaggca tccaaccctt caaagccgaa gaagaaggcg gacaccatca cgaccaccat 360  
 caccgaccacg atcatgacca cgaaggacac caccacgacc acggcgaata tgacccccac 420  
 gtctggaacg accctgttct tatgtccgac tatgcccata acgtcgctga aacctgata 480  
 aaggccgatc ccgaaggcaa agttttattat caacaacgct tgggcaacta ccaaattgcag 540  
 cttaaaaaac tgcacagcga cgcacaagcc gcattttaatg ccgtccctgc cgccaaacgc 600  
 aaagtctctga ccgggcacga cgcattttcc tacatgggca accgctacaa catcagcttc 660  
 atcgccccgc aaggcgtgag cagcgaagcc gagccgtccg ccaaacaagt cgccgccatc 720

atccggcaaa tcaaacgcga aggcataaaa gccgtattta ccgaaaatat caaagacacc 780  
 cgcattggttg accgcatcgc caaagaaacc ggcgtcaacg tcagcggcaa actgtattcc 840  
 gacgcactcg gcaacgcgcc cgcagacacc tacatcggca tgtaccgcca caacgtcgaa 900  
 gccttgacca acgcgatgaa gcaataa 927

<210> 1152  
 <211> 308  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1152  
 Met Lys His Leu Lys Leu Thr Leu Ile Ala Ala Leu Leu Ala Thr Ala  
   1                  5                  10                  15  
 Ala Thr Ala Ala Pro Leu Pro Val Val Thr Ser Phe Ser Ile Leu Gly  
                   20                  25                  30  
 Asp Val Ala Lys Gln Ile Gly Gly Glu Arg Val Ala Val Gln Ser Leu  
           35                  40                  45  
 Val Gly Ala Asn Gln Asp Thr His Ala Tyr His Met Thr Ser Gly Asp  
   50                  55                  60  
 Ile Lys Lys Ile Arg Ser Ala Lys Leu Val Leu Leu Asn Gly Leu Gly  
   65                  70                  75                  80  
 Leu Glu Ala Ala Asp Ile Gln Arg Ala Val Lys Gln Ser Lys Val Ser  
                   85                  90                  95  
 Tyr Ala Glu Ala Thr Lys Gly Ile Gln Pro Leu Lys Ala Glu Glu Glu  
           100                  105                  110  
 Gly Gly His His His Asp His His His Asp His Asp His Asp His Glu  
   115                  120                  125  
 Gly His His His Asp His Gly Glu Tyr Asp Pro His Val Trp Asn Asp  
   130                  135                  140  
 Pro Val Leu Met Ser Asp Tyr Ala Gln Asn Val Ala Glu Thr Leu Ile  
 145                  150                  155                  160  
 Lys Ala Asp Pro Glu Gly Lys Val Tyr Tyr Gln Gln Arg Leu Gly Asn  
           165                  170                  175  
 Tyr Gln Met Gln Leu Lys Lys Leu His Ser Asp Ala Gln Ala Ala Phe  
           180                  185                  190  
 Asn Ala Val Pro Ala Ala Lys Arg Lys Val Leu Thr Gly His Asp Ala  
   195                  200                  205  
 Phe Ser Tyr Met Gly Asn Arg Tyr Asn Ile Ser Phe Ile Ala Pro Gln  
   210                  215                  220  
 Gly Val Ser Ser Glu Ala Glu Pro Ser Ala Lys Gln Val Ala Ala Ile  
 225                  230                  235                  240

Ile Arg Gln Ile Lys Arg Glu Gly Ile Lys Ala Val Phe Thr Glu Asn  
245 250 255

Ile Lys Asp Thr Arg Met Val Asp Arg Ile Ala Lys Glu Thr Gly Val  
260 265 270

Asn Val Ser Gly Lys Leu Tyr Ser Asp Ala Leu Gly Asn Ala Pro Ala  
275 280 285

Asp Thr Tyr Ile Gly Met Tyr Arg His Asn Val Glu Ala Leu Thr Asn  
290 295 300

Ala Met Lys Gln  
305

<210> 1153  
<211> 915  
<212> DNA  
<213> Neisseria meningitidis

<400> 1153  
atgaaacacc tcaaactcac ccttattgcc gcattgctga ccgcctccgc aactgccgcc 60  
cccctgccgg ttgtaaccag cttcagcatt ttaggcgacg tagccaaaca aatcggcgga 120  
gagcgcgtat ccatacaaag tttggtcgga gccaaccaag atacgcacgc ctatcatatg 180  
accagtggcg acattaaaaa aatccgcagt gcaaaaactcg tcctgctcaa cggcttagga 240  
cttgaagctg ccgatgtgca acgcgccgctc aaacaaagca aagtatccta taccgaagcg 300  
accaaaggca tccaaccctt caaagccgaa gaagaaggcg gacaccatca cgaccacgat 360  
catgaccacg aaggacacca ccatgaccac ggcgaaatag acccgcacgt ctggaacgac 420  
cccgtcctta tgtccgccta tgcccaaaac gttgccaaag ccctgataaa ggccgatccc 480  
gaaggcaaag tttattatca acaacgcttg ggcaactacc aaatgcagct caaaaaactg 540  
cacagcgacg cacaagccgc atttaatgcc gtccctgctg ccaaacgcaa agtcctgacc 600  
gggcacgatg ccttttccta tatgggcaaa cgttaccata tcgaattcat cgccccgcaa 660  
ggcgtgagca gcgaagccga gccttcggcc aaacaagtcg ccgccatcat ccgacaaatc 720  
aaacgcgaag gcatcaaagc cgtctttacc gaaaacatca aggacaccgg tatggttgac 780  
cgtatcgcca aagaaaccgg tgtcaacgctc agcggcaaac tgtattccga cgcactcggc 840  
aacgcgcccg cagacaccta catcggaatg taccgccaca acatcaaagc cttgaccaac 900  
gcgatgaagc aataa 915

<210> 1154  
<211> 304  
<212> PRT  
<213> Neisseria meningitidis

<400> 1154  
Met Lys His Leu Lys Leu Thr Leu Ile Ala Ala Leu Leu Thr Ala Ser  
1 5 10 15

Ala Thr Ala Ala Pro Leu Pro Val Val Thr Ser Phe Ser Ile Leu Gly  
20 25 30

Asp Val Ala Lys Gln Ile Gly Gly Glu Arg Val Ser Ile Gln Ser Leu  
35 40 45

Val Gly Ala Asn Gln Asp Thr His Ala Tyr His Met Thr Ser Gly Asp



50					55					60					
Ile	Lys	Lys	Ile	Arg	Ser	Ala	Lys	Leu	Val	Leu	Leu	Asn	Gly	Leu	Gly
65					70					75					80
Leu	Glu	Ala	Ala	Asp	Val	Gln	Arg	Ala	Val	Lys	Gln	Ser	Lys	Val	Ser
				85					90					95	
Tyr	Thr	Glu	Ala	Thr	Lys	Gly	Ile	Gln	Pro	Leu	Lys	Ala	Glu	Glu	Glu
			100					105					110		
Gly	Gly	His	His	His	Asp	His	Asp	His	Asp	His	Glu	Gly	His	His	His
		115					120					125			
Asp	His	Gly	Glu	Tyr	Asp	Pro	His	Val	Trp	Asn	Asp	Pro	Val	Leu	Met
		130				135					140				
Ser	Ala	Tyr	Ala	Gln	Asn	Val	Ala	Lys	Ala	Leu	Ile	Lys	Ala	Asp	Pro
145					150					155					160
Glu	Gly	Lys	Val	Tyr	Tyr	Gln	Gln	Arg	Leu	Gly	Asn	Tyr	Gln	Met	Gln
			165						170					175	
Leu	Lys	Lys	Leu	His	Ser	Asp	Ala	Gln	Ala	Ala	Phe	Asn	Ala	Val	Pro
			180					185					190		
Ala	Ala	Lys	Arg	Lys	Val	Leu	Thr	Gly	His	Asp	Ala	Phe	Ser	Tyr	Met
		195					200					205			
Gly	Lys	Arg	Tyr	His	Ile	Glu	Phe	Ile	Ala	Pro	Gln	Gly	Val	Ser	Ser
	210					215					220				
Glu	Ala	Glu	Pro	Ser	Ala	Lys	Gln	Val	Ala	Ala	Ile	Ile	Arg	Gln	Ile
225					230					235					240
Lys	Arg	Glu	Gly	Ile	Lys	Ala	Val	Phe	Thr	Glu	Asn	Ile	Lys	Asp	Thr
			245						250					255	
Arg	Met	Val	Asp	Arg	Ile	Ala	Lys	Glu	Thr	Gly	Val	Asn	Val	Ser	Gly
		260						265					270		
Lys	Leu	Tyr	Ser	Asp	Ala	Leu	Gly	Asn	Ala	Pro	Ala	Asp	Thr	Tyr	Ile
	275					280					285				
Gly	Met	Tyr	Arg	His	Asn	Ile	Lys	Ala	Leu	Thr	Asn	Ala	Met	Lys	Gln
290					295					300					

<210> 1155

<211> 927

<212> DNA

<213> Neisseria meningitidis

<400> 1155

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atgaaacacc ccaaactcac ccttatcgcc gcattgctga ccactgccgc aactgccgcc 60
cccctgccgg ttgtaaccag cttcagcatt ttaggcgacg tagccaaaca aatcggcgga 120
gagcgcgtat ccatacaaaag tttggtcgga gccaaaccaag atacgcacgc ctatcatatg 180
accagcggcg acattaaaaa aatccgcagt gcaaaaactcg tcctgattaa cggcttagga 240
cttgaagctg ccgacatcca acgtgccgtc aaacagagca aagtatccta tgccgaagcg 300
accaaaggca tccaaccctt caaagccgaa gaagaaggcg gacaccatca cgaccacgat 360
catgaccacg accatgacca cgaaggacac caccacgacc acggcgaata tgacccccac 420
gtctggaacg accccgtcct tatgtccgcc tatgcccaaa acgtcgccga agccctgata 480
aaggccgacc ccgaaggcaa agtttattat caacaacgct tgggcaacta ccaaatgcag 540
ctcaaaaaac tgcacagtga cgcacaagcc gcatttaatg ccgtccctgc cgccaaacgc 600
aaagtcttga cggggcacga tgccttttcc tatatgggca aacgttacca tatcgaattc 660
atcgccccac aaggtgtgag cagcgaagcc gagccttcag ccaaacaagt cgccgccatc 720
atccgacaaa tcaaacgcga aggcatacaa gccgtattta ccgaaaatat caaagacacc 780
cgcatgggtg accgcatcgc caaagaaacc ggtgtcaacg tcagcggcaa actgtattcc 840
gacgcactcg gcaacgcacc cgcagacacc tacatcggca tgtaccgcca caacatcaaa 900
gccttaacca acgcgatgaa gcaataa
927

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<210> 1156

<211> 308

<212> PRT

<213> *Neisseria meningitidis*

<400> 1156

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Met Lys His Pro Lys Leu Thr Leu Ile Ala Ala Leu Leu Thr Thr Ala
 1             5             10             15

Ala Thr Ala Ala Pro Leu Pro Val Val Thr Ser Phe Ser Ile Leu Gly
      20             25             30

Asp Val Ala Lys Gln Ile Gly Gly Glu Arg Val Ser Ile Gln Ser Leu
 35             40             45

Val Gly Ala Asn Gln Asp Thr His Ala Tyr His Met Thr Ser Gly Asp
 50             55             60

Ile Lys Lys Ile Arg Ser Ala Lys Leu Val Leu Ile Asn Gly Leu Gly
 65             70             75             80

Leu Glu Ala Ala Asp Ile Gln Arg Ala Val Lys Gln Ser Lys Val Ser
      85             90             95

Tyr Ala Glu Ala Thr Lys Gly Ile Gln Pro Leu Lys Ala Glu Glu Glu
 100            105            110

Gly Gly His His His Asp His Asp His Asp His Asp His Asp His Glu
 115            120            125

Gly His His His Asp His Gly Glu Tyr Asp Pro His Val Trp Asn Asp
 130            135            140

Pro Val Leu Met Ser Ala Tyr Ala Gln Asn Val Ala Glu Ala Leu Ile
 145            150            155            160

Lys Ala Asp Pro Glu Gly Lys Val Tyr Tyr Gln Gln Arg Leu Gly Asn
 165            170            175

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Tyr Gln Met Gln Leu Lys Lys Leu His Ser Asp Ala Gln Ala Ala Phe  
 180 185 190  
 Asn Ala Val Pro Ala Ala Lys Arg Lys Val Leu Thr Gly His Asp Ala  
 195 200 205  
 Phe Ser Tyr Met Gly Lys Arg Tyr His Ile Glu Phe Ile Ala Pro Gln  
 210 215 220  
 Gly Val Ser Ser Glu Ala Glu Pro Ser Ala Lys Gln Val Ala Ala Ile  
 225 230 235 240  
 Ile Arg Gln Ile Lys Arg Glu Gly Ile Lys Ala Val Phe Thr Glu Asn  
 245 250 255  
 Ile Lys Asp Thr Arg Met Val Asp Arg Ile Ala Lys Glu Thr Gly Val  
 260 265 270  
 Asn Val Ser Gly Lys Leu Tyr Ser Asp Ala Leu Gly Asn Ala Pro Ala  
 275 280 285  
 Asp Thr Tyr Ile Gly Met Tyr Arg His Asn Ile Lys Ala Leu Thr Asn  
 290 295 300  
 Ala Met Lys Gln  
 305

<210> 1157  
 <211> 828  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 1157  
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 ttccctcgta tgcgcggtat gagcctgata ggcgacgcat tgagccacgc cgtcctgccc 120  
 ggtgccgccc tgggctacat gtttgccggc ttgagcctgc ccgctatggg tgtgggcccgg 180  
 tttgccgccc gtatgctgat ggcgctgctt gccggactcg tcagccgctt taccaccctg 240  
 aaagaagatg ccaactttgc cgccttttac ctgagcagcc tcgccatcgg cgtaatcctc 300  
 atcagcaaaa acggcagcag cgtcgattta ctccacctcc ttttcggatc tgtgcttgcc 360  
 gtcgatattc ccgcactgca actcatcgcc gccgtctccg gcctcacgct cattaccctt 420  
 gccgtcatct accgccccct ggtgctagaa agcatagacc cccttttctt caagtccgtc 480  
 aacggcaaaag gcgggctttg gcacgtcatt ttccctcatc tcgtcggtat gaacctcgta 540  
 tccggcttcc aagctctcgg catcctgatg tcgggtcggaa ttatgatgct gcccgccatt 600  
 accgcccgtt tatgggcaag aaatatgggg acgctcattc tgttgtccgt cctcatcgcc 660  
 cttttttgcg gtttgatcgg gctgctcatt tcctaccaca tcgaaatccc ttccggcccc 720  
 gccatcatcc tctgttgacg cgtcctttat cttttttccg tcatactcgg caaagaaggc 780  
 ggcaccttgc ccaaattggt caaaaaccac cgccaccaca ccacctga 828

<210> 1158  
 <211> 275  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 1158  
 Met His Tyr Ala Leu Ala Ser Val Phe Cys Leu Ser Leu Ser Ala Ala

1	5	10	15
Pro Val Gly Val Phe Leu Val Met Arg Arg Met Ser Leu Ile Gly Asp	20	25	30
Ala Leu Ser His Ala Val Leu Pro Gly Ala Ala Val Gly Tyr Met Phe	35	40	45
Ala Gly Leu Ser Leu Pro Ala Met Gly Val Gly Gly Phe Ala Ala Gly	50	55	60
Met Leu Met Ala Leu Leu Ala Gly Leu Val Ser Arg Phe Thr Thr Leu	65	70	75
Lys Glu Asp Ala Asn Phe Ala Ala Phe Tyr Leu Ser Ser Leu Ala Ile	85	90	95
Gly Val Ile Leu Ile Ser Lys Asn Gly Ser Ser Val Asp Leu Leu His	100	105	110
Leu Leu Phe Gly Ser Val Leu Ala Val Asp Ile Pro Ala Leu Gln Leu	115	120	125
Ile Ala Ala Val Ser Gly Leu Thr Leu Ile Thr Leu Ala Val Ile Tyr	130	135	140
Arg Pro Leu Val Leu Glu Ser Ile Asp Pro Leu Phe Leu Lys Ser Val	145	150	155
Asn Gly Lys Gly Gly Leu Trp His Val Ile Phe Leu Ile Leu Val Val	165	170	175
Met Asn Leu Val Ser Gly Phe Gln Ala Leu Gly Ile Leu Met Ser Val	180	185	190
Gly Ile Met Met Leu Pro Ala Ile Thr Ala Arg Leu Trp Ala Arg Asn	195	200	205
Met Gly Thr Leu Ile Leu Leu Ser Val Leu Ile Ala Leu Phe Cys Gly	210	215	220
Leu Ile Gly Leu Leu Ile Ser Tyr His Ile Glu Ile Pro Ser Gly Pro	225	230	235
Ala Ile Ile Leu Cys Cys Ser Val Leu Tyr Leu Phe Ser Val Ile Leu	245	250	255
Gly Lys Glu Gly Gly Ile Leu Pro Lys Trp Phe Lys Asn His Arg His	260	265	270
His Thr Thr	275		

<210> 1159

<211> 792

<212> DNA

<213> *Neisseria meningitidis*

<400> 1159

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atgcgctacg ccctcgcacg cgtctttctgc ctgtccctca gtgccgcacc cgtcggcgta 60
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gggtgccgccc tccggtacat gtttgccggc ttgagcctgc ccgccatggg tttgggcccgc 180
gtagccgcag gcatgctgat ggcactgctt gccggactcg tcagccgctt caccaccctg 240
aaagaagatg ccaactttgc cgccttttat ctcagcagcc tcgccatcgg cgtagtccctc 300
gtcagcaaaa acgggagcag cgtcgatttg ctccacctcc ttttcggctc tgtacttgcc 360
gtcgatatcc ctgccctgca gctcatcgcc gccgtctcca gcctcacgct cattaccctt 420
gccgtcatct accgcccgct cgtactcgaa agcatcgacc cctgtttct caaatccgtc 480
ggcggcaaaag gcgggctttg gcacgtcctc tttctcgtcc tggtcgtcat gaacctcgta 540
tccggctttc aagccctcgg cacactcatg tccgtcggac tcatgatgct gccagccatt 600
accgcccgcc tgtgggcgaa gcatatgggc gcactcatcc tcctatccgt tctgacagcc 660
ctgctgtgcg gcttgagcgg actgctcatt tcctaccaca tcgaaattcc ttccggtccc 720
gccatcatcc tctgttcgag cgtcctttat ctcttttccg tcatactcgg caaagaaggc 780
ggcattctga cc                                     792
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<210> 1160

<211> 264

<212> PRT

<213> *Neisseria meningitidis*

<400> 1160

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Met Arg Tyr Ala Leu Ala Ser Val Phe Cys Leu Ser Leu Ser Ala Ala
  1             5             10             15

Pro Val Gly Val Phe Leu Val Met Arg Arg Met Ser Leu Ile Gly Asp
      20             25             30

Ala Leu Ser His Ala Val Leu Pro Gly Ala Ala Val Gly Tyr Met Phe
      35             40             45

Ala Gly Leu Ser Leu Pro Ala Met Gly Leu Gly Gly Val Ala Ala Gly
      50             55             60

Met Leu Met Ala Leu Leu Ala Gly Leu Val Ser Arg Phe Thr Thr Leu
      65             70             75             80

Lys Glu Asp Ala Asn Phe Ala Ala Phe Tyr Leu Ser Ser Leu Ala Ile
      85             90             95

Gly Val Val Leu Val Ser Lys Asn Gly Ser Ser Val Asp Leu Leu His
      100            105            110

Leu Leu Phe Gly Ser Val Leu Ala Val Asp Ile Pro Ala Leu Gln Leu
      115            120            125

Ile Ala Ala Val Ser Ser Leu Thr Leu Ile Thr Leu Ala Val Ile Tyr
      130            135            140

Arg Pro Leu Val Leu Glu Ser Ile Asp Pro Leu Phe Leu Lys Ser Val
      145            150            155            160

Gly Gly Lys Gly Gly Leu Trp His Val Leu Phe Leu Val Leu Val Val
```

165	170	175
Met Asn Leu Val Ser Gly Phe Gln Ala Leu Gly Thr Leu Met Ser Val		
180	185	190
Gly Leu Met Met Leu Pro Ala Ile Thr Ala Arg Leu Trp Ala Lys His		
195	200	205
Met Gly Ala Leu Ile Leu Leu Ser Val Leu Thr Ala Leu Leu Cys Gly		
210	215	220
Leu Ser Gly Leu Leu Ile Ser Tyr His Ile Glu Ile Pro Ser Gly Pro		
225	230	235
Ala Ile Ile Leu Cys Cys Ser Val Leu Tyr Leu Phe Ser Val Ile Leu		
245	250	255
Gly Lys Glu Gly Gly Ile Leu Thr		
260		

<210> 1161  
 <211> 828  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1161  
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 ttctctcgta tgcgccgtat gagcctgata ggcgacgcat tgagccacgc cgtcctgccc 120  
 ggtgccgccc tccgctacat gtttgccggc ttaagcctgc ccgccatggg tttgggcggc 180  
 gtagccgcag gtatgctgat ggcaactgctt gccggactcg tcagccgctt caccaccctg 240  
 aaagaagatg ccaactttgc cgccttttat ctccagcagc tcgccatcgg tgtagtcctc 300  
 gtcagcaaaa acggcagcag cgtcgatttg ctccacctcc ttttcggctc cgtacttgcc 360  
 gtcgatatte ctgccctgca actcatcgcc gccgatatca ccctcacact gcttaccctt 420  
 gccgtcatct accgcccgct cgtactcgaa agcatcgacc ccctgtttct caaatctgtc 480  
 ggcggcaaaag gcgggctttg gcacgtcttc tttctcgtcc tggtcgtcat gaacctcgta 540  
 tccggctttc aagccctcgg cactcatg tccgtcggac ttatgatgct gccagccatt 600  
 accgcccgcc tatgggcgaa gcacatgggc gactcatcc tctatccgt tctgacagcc 660  
 ctgctgtgcg gcttgagcgg actgctcatt tctaccaca tcgaaattcc ttcgggtccc 720  
 gccatcatcc tctgttgag cgtcctttat ctcttttccg tcatactcgg caaagaaggc 780  
 ggcattctga ccaaatggct caaaaaccac cgccaccaca ccacctga 828

<210> 1162  
 <211> 275  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1162  
 Met Arg Tyr Ala Leu Ala Ser Val Phe Cys Leu Ser Leu Ser Ala Ala  
 1 5 10 15  
 Pro Val Gly Val Phe Leu Val Met Arg Arg Met Ser Leu Ile Gly Asp  
 20 25 30  
 Ala Leu Ser His Ala Val Leu Pro Gly Ala Ala Val Gly Tyr Met Phe  
 35 40 45

Ala Gly Leu Ser Leu Pro Ala Met Gly Leu Gly Gly Val Ala Ala Gly  
     50                    55                    60  
 Met Leu Met Ala Leu Leu Ala Gly Leu Val Ser Arg Phe Thr Thr Leu  
     65                    70                    75                    80  
 Lys Glu Asp Ala Asn Phe Ala Ala Phe Tyr Leu Ser Ser Leu Ala Ile  
                     85                    90                    95  
 Gly Val Val Leu Val Ser Lys Asn Gly Ser Ser Val Asp Leu Leu His  
                     100                    105                    110  
 Leu Leu Phe Gly Ser Val Leu Ala Val Asp Ile Pro Ala Leu Gln Leu  
                     115                    120                    125  
 Ile Ala Ala Val Ser Thr Leu Thr Leu Leu Thr Leu Ala Val Ile Tyr  
                     130                    135                    140  
 Arg Pro Leu Val Leu Glu Ser Ile Asp Pro Leu Phe Leu Lys Ser Val  
     145                    150                    155                    160  
 Gly Gly Lys Gly Gly Leu Trp His Val Leu Phe Leu Val Leu Val Val  
                     165                    170                    175  
 Met Asn Leu Val Ser Gly Phe Gln Ala Leu Gly Thr Leu Met Ser Val  
                     180                    185                    190  
 Gly Leu Met Met Leu Pro Ala Ile Thr Ala Arg Leu Trp Ala Lys His  
                     195                    200                    205  
 Met Gly Ala Leu Ile Leu Leu Ser Val Leu Thr Ala Leu Leu Cys Gly  
                     210                    215                    220  
 Leu Ser Gly Leu Leu Ile Ser Tyr His Ile Glu Ile Pro Ser Gly Pro  
     225                    230                    235                    240  
 Ala Ile Ile Leu Cys Cys Ser Val Leu Tyr Leu Phe Ser Val Ile Leu  
                     245                    250                    255  
 Gly Lys Glu Gly Gly Ile Leu Thr Lys Trp Leu Lys Asn His Arg His  
                     260                    265                    270  
 His Thr Thr  
                     275

<210> 1163

<211> 654

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1163

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 ttttagcgcgt tgtcgcttta ccttgacctg accaacggac acagcacgaa ggagcgcagg 120  
 aaggtcgcgc ggacggccgc cgtcgccgtg tttgccgtga ttgcggtatt tgcgctgac 180

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ggcgggtgcgc tattgaaggt tttgggcatc agcgtcgggt cgtttcaggt cggcggcggg 240
atTTTggtgc tgcTgatcgc catttcgatg atgaacggca acgacaatcc cgccaagcag 300
aatctcggcg cgcagccgga aacggggcaa gcgcgccccg cccgcaatgc aggggcgatt 360
gccgtcgtgc ccatcgccat accgatcacc atcgggtccgg gcggtatttc gactgtgatt 420
atTTatgctt cggcagccaa aacgtacagc gatatcgcgc tgattatcgc ggccgggtttg 480
gtggtcagtg cgatttggtt tgccatttta atcgttgccg ggaaggtcag ccgcctgctg 540
ggcgcgacgg ggctgacgat tttaaaccgc attatgggta tgatgctggc ggcggtatcg 600
gtggagatta ttgtgtcggg actgaaaacg atattcccgc aactggcagg ttga 654

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<210> 1164

<211> 217

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1164

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Met Gly Leu Gly Met Glu Ile Gly Lys Leu Ile Val Ala Leu Leu Val
  1             5             10             15

Leu Ile Asn Pro Phe Ser Ala Leu Ser Leu Tyr Leu Asp Leu Thr Asn
          20             25             30

Gly His Ser Thr Lys Glu Arg Arg Lys Val Ala Arg Thr Ala Ala Val
          35             40             45

Ala Val Phe Ala Val Ile Ala Val Phe Ala Leu Ile Gly Gly Ala Leu
          50             55             60

Leu Lys Val Leu Gly Ile Ser Val Gly Ser Phe Gln Val Gly Gly Gly
  65             70             75             80

Ile Leu Val Leu Leu Ile Ala Ile Ser Met Met Asn Gly Asn Asp Asn
          85             90             95

Pro Ala Lys Gln Asn Leu Gly Ala Gln Pro Glu Thr Gly Gln Ala Arg
          100            105            110

Pro Ala Arg Asn Ala Gly Ala Ile Ala Val Val Pro Ile Ala Ile Pro
          115            120            125

Ile Thr Ile Gly Pro Gly Gly Ile Ser Thr Val Ile Ile Tyr Ala Ser
          130            135            140

Ala Ala Lys Thr Tyr Ser Asp Ile Ala Leu Ile Ile Ala Ala Gly Leu
          145            150            155            160

Val Val Ser Ala Ile Cys Tyr Ala Ile Leu Ile Val Ala Gly Lys Val
          165            170            175

Ser Arg Leu Leu Gly Ala Thr Gly Leu Thr Ile Leu Asn Arg Ile Met
          180            185            190

Gly Met Met Leu Ala Ala Val Ser Val Glu Ile Ile Val Ser Gly Leu
          195            200            205

Lys Thr Ile Phe Pro Gln Leu Ala Gly

```



210

215

&lt;210&gt; 1165

&lt;211&gt; 654

&lt;212&gt; DNA

<213> *Neisseria meningitidis*

&lt;400&gt; 1165

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aaggtcgcgc ggacggccgc cgttgccgtg ttgcccgtga ttgcggtatt tgcgctgac 180
ggcggtagcgc tgctgaaggt tttgggcatc agcgtcgggt cgtttcaggt cggcggcggg 240
atthtgggtgc tgctgatcgc catttcgatg atgaacggca acgacaatcc cgccaagcag 300
aatctcggcg cgcagccgga aacggggcag gcgcgccccg cccgcaatgc cggagcgatt 360
gccgtcgtgc ccatcgccat accgatcacc atcgccccgg gcggtatttc gaccgtgatt 420
atthacgctt cggcgggctaa aacatacggc gacatcgctg tgattatcgc gcccggtttg 480
gtgggtcagtg cgatttggtta tgccatttta atcgttgccg ggaaggtcag ccgcctgctg 540
ggcgcgcacgg ggctgacgat tttaaaccgc attatgggta tgatgctggc gccggtatcg 600
gtggagatta ttgtgtcggg actgaaaacg atattcccgc aactggcagg ttga 654

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&lt;210&gt; 1166

&lt;211&gt; 217

&lt;212&gt; PRT

<213> *Neisseria meningitidis*

&lt;400&gt; 1166

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Met Gly Leu Gly Met Glu Ile Gly Lys Leu Ile Val Ala Phe Leu Val
 1             5             10             15

Leu Ile Asn Pro Phe Ser Ala Leu Ser Leu Tyr Leu Asp Leu Thr Asn
             20             25             30

Gly His Ser Thr Lys Glu Arg Arg Lys Val Ala Arg Thr Ala Ala Val
             35             40             45

Ala Val Phe Ala Val Ile Ala Val Phe Ala Leu Ile Gly Gly Thr Leu
             50             55             60

Leu Lys Val Leu Gly Ile Ser Val Gly Ser Phe Gln Val Gly Gly Gly
             65             70             75             80

Ile Leu Val Leu Leu Ile Ala Ile Ser Met Met Asn Gly Asn Asp Asn
             85             90             95

Pro Ala Lys Gln Asn Leu Gly Ala Gln Pro Glu Thr Gly Gln Ala Arg
             100            105            110

Pro Ala Arg Asn Ala Gly Ala Ile Ala Val Val Pro Ile Ala Ile Pro
             115            120            125

Ile Thr Ile Gly Pro Gly Gly Ile Ser Thr Val Ile Ile Tyr Ala Ser
             130            135            140

Ala Ala Lys Thr Tyr Gly Asp Ile Ala Leu Ile Ile Ala Ala Gly Leu

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145                      150                      155                      160  
 Val Val Ser Ala Ile Cys Tyr Ala Ile Leu Ile Val Ala Gly Lys Val  
                                  165                      170                      175  
 Ser Arg Leu Leu Gly Ala Thr Gly Leu Thr Ile Leu Asn Arg Ile Met  
                                  180                      185                      190  
 Gly Met Met Leu Ala Ala Val Ser Val Glu Ile Ile Val Ser Gly Leu  
                                  195                      200                      205  
 Lys Thr Ile Phe Pro Gln Leu Ala Gly  
                                  210                      215

<210> 1167  
 <211> 654  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1167  
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 tttagcgcgt tgctgcttta ccttgacctg accaacgggc acagcacgaa ggagcgcagg 120  
 aaggtcgcgc ggacggccgc cgttgccgtg tttgccgtga ttgcggtatt tgcgctgata 180  
 ggcggtacgc tgctgaaggt tttgggcatc agcgtcgggt cgtttcaggt cggcggcgga 240  
 attttggtgt tgctgattgc catttcgatg atgaacggca acgacaatcc cgccaagcag 300  
 aatctcggcg cgcagccgga aacggggcag gtgcgccccg cccgcaatgc cggagcgatt 360  
 gccgtcgtgc ccatcgccat accgatcacc atcgccccgg gcggtatttc gaccgtgatt 420  
 atttacgctt cggcggctaa aacatacggc gacatcgctg tgattatcgc ggccggtttg 480  
 gtggtcagtg cgatttgcta tgccatttta atcgttgccg ggaagggtcag ccgcctgctg 540  
 ggtgcgacgg ggctgacgat tttaaaccgt atcatgggta tgatgctggc ggcggtatcg 600  
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<210> 1168  
 <211> 217  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1168  
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 Leu Ile Asn Pro Phe Ser Ala Leu Ser Leu Tyr Leu Asp Leu Thr Asn  
                                   20                                  25                                  30  
 Gly His Ser Thr Lys Glu Arg Arg Lys Val Ala Arg Thr Ala Ala Val  
                                   35                                  40                                  45  
 Ala Val Phe Ala Val Ile Ala Val Phe Ala Leu Ile Gly Gly Thr Leu  
                                   50                                  55                                  60  
 Leu Lys Val Leu Gly Ile Ser Val Gly Ser Phe Gln Val Gly Gly Gly  
   65                                  70                                  75                                  80  
 Ile Leu Val Leu Leu Ile Ala Ile Ser Met Met Asn Gly Asn Asp Asn  
                                   85                                  90                                  95

Pro Ala Lys Gln Asn Leu Gly Ala Gln Pro Glu Thr Gly Gln Val Arg  
                   100                  105                  110  
 Pro Ala Arg Asn Ala Gly Ala Ile Ala Val Val Pro Ile Ala Ile Pro  
                   115                  120                  125  
 Ile Thr Ile Gly Pro Gly Gly Ile Ser Thr Val Ile Ile Tyr Ala Ser  
                   130                  135                  140  
 Ala Ala Lys Thr Tyr Gly Asp Ile Ala Leu Ile Ile Ala Ala Gly Leu  
                   145                  150                  155                  160  
 Val Val Ser Ala Ile Cys Tyr Ala Ile Leu Ile Val Ala Gly Lys Val  
                   165                  170                  175  
 Ser Arg Leu Leu Gly Ala Thr Gly Leu Thr Ile Leu Asn Arg Ile Met  
                   180                  185                  190  
 Gly Met Met Leu Ala Ala Val Ser Val Glu Ile Ile Val Ser Gly Leu  
                   195                  200                  205  
 Lys Met Ile Phe Pro Gln Leu Ala Gly  
                   210                  215

<210> 1169  
 <211> 429  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1169  
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 aaacagcttc atcccgacca gagccaaatc ctcaacctgc ggacgctcca aaccaaaccg 180  
 gcggtcaagc ccaaacctgc cgtcgatacg aatgcggaca gtgcgaagga aaacgaaaag 240  
 gatatcgccg agaaaaacgg gcagcttgag gaagaaaaga aaaaaattgc cgaaaccgaa 300  
 cggcagaaca aagaagaaaa ctgccggatt tcaaaaatga acctgaaggc ggtgggaaac 360  
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<210> 1170  
 <211> 142  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1170  
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           1                  5                  10                  15  
 Pro Val Pro Pro Ala Gly Thr Ala Val Phe Thr Trp Lys Asp Gly Gly  
                   20                  25                  30  
 Gly Asn Ser Tyr Ser Asp Val Pro Lys Gln Leu His Pro Asp Gln Ser  
                   35                  40                  45

Gln Ile Leu Asn Leu Arg Thr Leu Gln Thr Lys Pro Ala Val Lys Pro  
 50 55 60  
 Lys Pro Ala Val Asp Thr Asn Ala Asp Ser Ala Lys Glu Asn Glu Lys  
 65 70 75 80  
 Asp Ile Ala Glu Lys Asn Gly Gln Leu Glu Glu Glu Lys Lys Lys Ile  
 85 90 95  
 Ala Glu Thr Glu Arg Gln Asn Lys Glu Glu Asn Cys Arg Ile Ser Lys  
 100 105 110  
 Met Asn Leu Lys Ala Val Gly Asn Ser Asn Ala Lys Asn Lys Asp Asp  
 115 120 125  
 Leu Ile Arg Lys Tyr Asn Asn Ala Val Asn Lys Tyr Cys Arg  
 130 135 140

<210> 1171  
 <211> 435  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1171  
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 aaacagcttc atcccgacca aagccaaatc ttaaacctgc ggacgcgcca aaccaaaccg 180  
 gcggtcaaac ccgcccaagc cgacgcaggg aagcgcacag acggcgcggc acaggaaaac 240  
 aatcccgaca ctgccgagaa aaaccggcag cttgaggaag aaaagaaaag aattgccgaa 300  
 accgaacggc agaacaaaga agaaaactgc cggatttcaa aaatgaacct gaaggcgggtg 360  
 ggaaattcaa atgcaaaaaa caaggatgat ttgattcgga aatacaataa cgccgtaaac 420  
 aaatactgcc gttaa 435

<210> 1172  
 <211> 144  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1172  
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 20 25 30  
 Gly Asn Ser Tyr Ser Asp Val Pro Lys Gln Leu His Pro Asp Gln Ser  
 35 40 45  
 Gln Ile Leu Asn Leu Arg Thr Arg Gln Thr Lys Pro Ala Val Lys Pro  
 50 55 60  
 Ala Gln Ala Asp Ala Gly Lys Arg Thr Asp Gly Ala Ala Gln Glu Asn  
 65 70 75 80



Arg Ile Ala Glu Thr Glu Arg Gln Asn Lys Glu Glu Asn Cys Arg Ile  
100 105 110

Ser Lys Met Asn Leu Lys Ala Val Gly Asn Ser Asn Ala Lys Asn Lys  
115 120 125

Asp Asp Leu Ile Arg Lys Tyr Asn Asn Ala Val Asn Lys Tyr Cys Arg  
130 135 140

<210> 1175  
<211> 897  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 1175  
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gcctttgaag ccttcgccgg tttttttgaa actgtctttc ttaaagcctt ctttcttgaa 180  
accttcgccg cgcgttttgc cgcggaagcc ttctttgccc ggtttatgat cgcgcgcccg 240  
gccgccggat ttcctatcgc ccagccgcc tttgcctttc ggcttgccgc ctgcggattt 300  
gcgtttgcgg gcgggtccca tgccttcgat ggtcagttcg ggcagtttgc ggttaatgta 360  
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caggtcgtag tttatgacgt gggtaatggt cggtagctca ataccgcgtg cggcaacgta 540  
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gccctgcggc atatcgccgt gcaggcagtt ggcgccgaaa cctttttcgt acaattcatc 660  
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<210> 1176  
<211> 298  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 1176  
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Lys Arg Val Ala Gly Phe Ala Phe Ala Phe Glu Ala Phe Ala Gly Phe  
35 40 45

Phe Glu Thr Val Phe Leu Lys Ala Phe Phe Leu Glu Thr Phe Ala Ala  
50 55 60

Arg Phe Ala Ala Glu Ala Phe Phe Ala Arg Phe Met Ile Ala Ala Pro  
65 70 75 80

Ala Ala Gly Phe Pro Ile Ala Pro Ala Ala Phe Ala Phe Arg Leu Ala  
85 90 95

Ala Cys Gly Phe Ala Phe Ala Gly Arg Leu His Ala Phe Asp Gly Gln  
100 105 110

Phe Gly Gln Phe Ala Val Asn Val Phe Phe Asp Phe Val Asp Phe Asp  
115 120 125

Val Phe Val His Phe Gly Lys Arg Asn Arg Asn Thr Arg Ala Ala Cys  
130 135 140

Ala Ala Gly Ala Pro Asp Ala Val Asp Val Val Phe Arg Leu Phe Arg  
145 150 155 160

Gln Val Val Val Tyr Asp Val Gly Asn Gly Arg Tyr Val Asn Thr Ala  
165 170 175

Cys Gly Asn Val Gly Gly Asn Gln Asn Phe Ala Ala Ala Phe Thr Gln  
180 185 190

Ile Arg Gln Arg Ala Val Ala Pro Ala Leu Arg His Ile Ala Val Gln  
195 200 205

Ala Val Gly Gly Glu Thr Phe Phe Val Gln Phe Ile Arg Asp Asp Phe  
210 215 220

Gly His Arg Phe Gly Gly Arg Glu Asn His Thr Leu Val Asp Val Gly  
225 230 235 240

Ile Ala Gln Asp Val Val Glu Gln Ala Val Phe Val Ala His Ile Val  
245 250 255

Ala Val Gln Gln Leu Leu Phe Asp Phe Ala Leu Ala Val His Ala Phe  
260 265 270

Asp Phe Asp Asn Phe Arg Val Phe Gly Gln Phe Ala Arg Gln Phe Ala  
275 280 285

Asp Cys Ala Val Pro Ser Gly Gly Glu Gln  
290 295

<210> 1177

<211> 1275

<212> DNA

<213> Neisseria meningitidis

<400> 1177

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gcgtttgcgg gtcggttcca tgccttcgat ggtcagttcg ggcagttttc ggtaaatgta 360  
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<210> 1178

<211> 424

<212> PRT

<213> Neisseria meningitidis

<400> 1178

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Ala Gly Trp Gly Leu Ala Val Phe Val Thr Ala Phe Ala Phe Ala Cys
                20                      25                      30

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Lys Arg Ile Ala Gly Phe Ala Phe Ala Phe Glu Ala Phe Ala Gly Phe
  35                      40                      45

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Phe Glu Thr Val Ser Leu Lys Ala Phe Phe Leu Glu Thr Phe Ala Ala
  50                      55                      60

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Arg Phe Ala Ala Glu Ala Phe Phe Ala Arg Phe Met Ile Ala Ala Pro
  65                      70                      75                      80

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Thr Ala Gly Phe Thr Ile Ala Pro Ala Ala Phe Ala Phe Arg Leu Ala
                85                      90                      95

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Ala Cys Gly Phe Ala Phe Ala Gly Arg Phe His Ala Phe Asp Gly Gln
  100                      105                      110

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Phe Gly Gln Phe Ser Val Asn Val Phe Phe Asp Phe Val Asp Phe Asp
  115                      120                      125

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Val Phe Val His Phe Gly Lys Arg Asn Arg Asn Thr Arg Ala Ala Cys
  130                      135                      140

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Ala Ala Gly Ala Pro Asp Ala Val Asp Val Val Phe Arg Leu Phe Arg
  145                      150                      155                      160

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Gln Val Val Val Asp Asn Val Gly Asn Gly Arg Tyr Val Asp Thr Ala
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Cys Gly Asn Ile Gly Gly Asn Gln Asn Phe Ala Ala Ala Phe Thr Gln

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180	185	190
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Ala Val Cys Gly Glu Thr Phe Phe Val Gln Phe Ile Arg Asn Asp Phe 210 215 220		
Gly His Gly Phe Gly Gly Arg Glu Asn His Ala Leu Ile Asp Ile Gly 225 230 235 240		
Ile Ala Gln Asp Met Ile Glu Gln Ala Val Phe Val Ala His Ile Val 245 250 255		
Ala Val Gln Gln Leu Phe Phe Asp Phe Ala Leu Ile Val His Ala Phe 260 265 270		
Asp Phe Asp Asp Phe Arg Val Phe Gly Gln Phe Ala Arg Gln Phe Ala 275 280 285		
Asp Arg Ala Val Pro Ser Gly Gly Glu Gln Gln Ser Leu Thr Val Ala 290 295 300		
Arg Arg Cys Phe His Asp Gly Phe Asp Val Val Asp Lys Ala His Ile 305 310 315 320		
Gln His Thr Val Gly Phe Val Gln Asn Gln His Phe Gln Thr Phe Lys 325 330 335		
Ile Asn Phe Ala Ala Leu His Gln Val His Gln Thr Ala Arg Arg Gly 340 345 350		
Asp Asn Gln Ile Asp Arg Phe Ala Gln Gly Thr Gly Leu Val Ala Glu 355 360 365		
Arg Arg Ala Ala Asp Asp Ala Asp Gly Ala Glu Pro Thr His Ile Phe 370 375 380		
Gly Ile Arg Gln Arg Val Phe Leu Asp Leu Ser Arg Gln Phe Ala Gly 385 390 395 400		
Arg Gly Gln His Gln Ser Thr Arg Ala Phe Ala Arg Phe Phe Ala Ala 405 410 415		
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<210> 1179

<211> 1275

<212> DNA

<213> Neisseria meningitidis

<400> 1179

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 gcctttgaag ccttcgccgg tttttttgaa accgtctctc ttaaagcctt ctttcttgaa 180

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accttcgccg cgcgttttgc cgccgaagcc ttctttgctc ggtttatgat cgccgcgcca 240
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ctgcaaagtc ggtaa 1275

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<210> 1180  
 <211> 424  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1180

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	20						25						30		
Lys	Arg	Ile	Ala	Gly	Phe	Ala	Phe	Ala	Phe	Glu	Ala	Phe	Ala	Gly	Phe
	35					40						45			
Phe	Glu	Thr	Val	Ser	Leu	Lys	Ala	Phe	Phe	Leu	Glu	Thr	Phe	Ala	Ala
	50					55				60					
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Thr	Ala	Gly	Phe	Thr	Ile	Ala	Pro	Ala	Ala	Phe	Ala	Phe	Arg	Leu	Ala
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Phe	Gly	Gln	Phe	Ser	Val	Asn	Val	Phe	Phe	Asp	Phe	Val	Asp	Phe	Asp
	115					120						125			
Val	Phe	Val	His	Phe	Gly	Lys	Arg	Asn	Arg	Asn	Thr	Arg	Ala	Ala	Cys
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145					150					155					160

Gln	Val	Val	Val	Asp	Asn	Val	Gly	Asn	Gly	Arg	Tyr	Val	Asp	Thr	Ala		
				165					170					175			
Cys	Gly	Asn	Val	Gly	Gly	Asn	Gln	Asn	Phe	Ala	Ala	Ala	Phe	Ala	Gln		
			180					185					190				
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225					230					235					240		
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		260						265					270				
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	275						280					285					
Asp	Arg	Ala	Val	Pro	Ser	Gly	Gly	Glu	Gln	Gln	Ser	Leu	Thr	Val	Phe		
	290					295					300						
Arg	Arg	Gly	Phe	Asp	Asp	Gly	Phe	Asp	Val	Val	Asp	Lys	Ala	His	Ile		
305				310						315					320		
Gln	His	Thr	Val	Gly	Phe	Val	Gln	Asn	Gln	His	Phe	Gln	Ala	Gly	Glu		
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Ile	Asp	Phe	Ala	Ala	Leu	His	Gln	Val	His	Gln	Thr	Ala	Arg	Arg	Gly		
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385				390						395					400		
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Phe	Gly	Gln	Ser	Leu	Gln	Ser	Arg										
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<210> 1181  
 <211> 4170  
 <212> DNA

<213> Neisseria gonorrhoeae

<400> 1181

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<213> *Neisseria gonorrhoeae*

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<210> 1184

<211> 1389

<212> PRT

<213> Neisseria meningitidis

<400> 1184

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Met Thr Asp Thr Ala Pro Thr Asp Thr Asp Pro Thr Glu Asn Gly Thr
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Arg Lys Met Pro Ser Glu His Arg Pro Thr Pro Pro Ala Lys Lys Arg
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```

```

Arg Pro Leu Leu Lys Leu Ser Ala Ala Leu Leu Ser Val Leu Ile Leu
      35              40              45

```

```

Ala Val Cys Phe Leu Gly Trp Leu Ala Gly Thr Glu Ala Gly Leu Arg
      50              55              60

```

```

Phe Gly Leu Tyr Gln Ile Pro Ser Trp Phe Gly Val Asn Ile Ser Ser
      65              70              75              80

```

```

Gln Asn Leu Lys Gly Thr Leu Leu Asp Gly Phe Asp Gly Asp Asn Trp
      85              90              95

```

```

Ser Ile Glu Thr Glu Gly Ala Asp Leu Lys Ile Ser Arg Phe Arg Phe
      100             105             110

```

```

Ala Trp Lys Pro Ser Glu Leu Met Arg Arg Ser Leu His Ile Thr Glu
      115             120             125

```

```

Ile Ser Ala Gly Asp Ile Ala Ile Val Thr Lys Pro Thr Pro Pro Lys
      130             135             140

```

```

Glu Glu Arg Pro Pro Leu Ser Leu Pro Asp Ser Ile Asp Leu Pro Ala

```

145	150	155	160
Ala Val Tyr Leu Asp Arg Phe Glu Thr Gly Lys Ile Ser Met Gly Lys	165	170	175
Ala Phe Asp Lys Gln Thr Val Tyr Leu Glu Arg Leu Asp Ala Ser Tyr	180	185	190
Arg Tyr Asp Arg Lys Gly His Arg Leu Asp Leu Lys Ala Ala Asp Thr	195	200	205
Pro Trp Ser Ser Ser Ser Gly Ala Ala Ser Val Gly Leu Lys Lys Pro	210	215	220
Phe Ala Leu Asp Thr Ala Ile Tyr Thr Lys Gly Gly Leu Glu Gly Lys	225	230	235
Thr Ile His Ser Thr Ala Arg Leu Ser Gly Ser Leu Lys Asp Val Arg	245	250	255
Ala Glu Leu Ala Ile Asp Gly Gly Asn Ile Arg Leu Ser Gly Lys Ser	260	265	270
Val Ile His Pro Phe Ala Glu Ser Leu Asp Lys Thr Leu Glu Glu Val	275	280	285
Leu Val Lys Gly Phe Asn Ile Asn Pro Ala Ala Phe Val Pro Ser Leu	290	295	300
Pro Asp Ala Gly Leu Asn Phe Asp Leu Thr Ala Ile Pro Ser Phe Ser	305	310	315
Asp Gly Ile Ala Leu Glu Gly Ser Leu Asp Leu Glu Asn Thr Lys Ala	325	330	335
Gly Phe Ala Asp Arg Asn Gly Ile Pro Val Arg Gln Val Leu Gly Gly	340	345	350
Phe Val Ile Arg Gln Asp Gly Thr Val His Ile Gly Asn Thr Ser Ala	355	360	365
Ala Leu Leu Gly Arg Gly Gly Ile Arg Leu Ser Gly Lys Ile Asp Thr	370	375	380
Glu Lys Asp Ile Leu Asp Leu Asn Ile Gly Ile Asn Ser Val Gly Ala	385	390	395
Glu Asp Val Leu Gln Thr Ala Phe Lys Gly Arg Leu Asp Gly Ser Ile	405	410	415
Gly Ile Gly Gly Thr Thr Ala Ser Pro Lys Ile Ser Trp Gln Leu Gly	420	425	430
Ile Gly Thr Ala Arg Thr Asp Gly Ser Leu Ala Ile Ala Ser Asp Pro	435	440	445
Ala Asn Gly Gln Arg Lys Leu Val Leu Asp Thr Val Asn Ile Ala Ala			

450		455		460											
Gly 465	Gln 465	Gly 465	Ser 465	Leu 465	Thr 470	Ala 470	Gln 470	Gly 470	Tyr 475	Leu 475	Glu 475	Leu 475	Phe 475	Lys 480	Asp 480
Arg 485	Leu 485	Leu 485	Lys 485	Leu 485	Asp 485	Ile 490	Arg 490	Ser 490	Arg 490	Ala 490	Phe 495	Asp 495	Pro 495	Ser 495	Arg 495
Ile 500	Asp 500	Pro 500	Gln 500	Leu 500	Pro 505	Ala 505	Gly 505	Asn 505	Ile 510	Asn 510	Gly 510	Ser 510	Ile 510	Asn 510	Leu 510
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Tyr 545	Glu 545	Ser 545	Arg 545	His 545	Leu 550	Pro 550	Arg 550	Ala 550	Ala 555	Val 555	Asp 555	Leu 555	Arg 555	Leu 555	Gly 560
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Leu 580	Asn 580	Leu 580	Asn 580	Ile 580	Thr 585	Ala 585	Pro 585	Asp 585	Leu 590	Ser 590	Arg 590	Phe 590	Gly 590	Phe 590	Gly 590
Leu 595	Ala 595	Gly 595	Ser 595	Leu 595	Asn 600	Val 600	Arg 600	Gly 600	His 605	Leu 605	Ser 605	Gly 605	Asp 605	Leu 605	Asp 605
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Lys 645	Gly 645	Ser 645	Pro 645	Asp 645	Thr 645	Ser 645	Arg 645	Pro 645	Ile 650	Arg 650	Ala 650	Asp 650	Ile 650	Lys 655	Gly 655
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Ala 690	Met 690	Thr 690	Leu 690	Asp 690	Gly 690	Lys 695	Pro 695	Phe 695	Lys 695	Phe 695	Asp 695	Leu 695	Asp 695	Ala 695	Ser 695
Gly 705	Gly 705	Ile 705	Asn 705	Arg 705	Glu 710	Leu 710	Thr 710	Arg 710	Trp 710	Lys 715	Gly 715	Ser 715	Ile 715	Gly 715	Ile 720
Leu 725	Asp 725	Ile 725	Gly 725	Gly 725	Ala 725	Phe 725	Asn 725	Leu 725	Lys 725	Leu 725	Gln 725	Asn 725	Arg 725	Met 725	Thr 725
Leu 740	Glu 740	Ala 740	Gly 740	Ala 740	Glu 740	Arg 740	Val 740	Ala 745	Ala 745	Ser 745	Ala 745	Ala 745	Asn 745	Trp 745	Gln 745
Ala 750	Met 750	Gly 750	Gly 750	Ser 750	Leu 750	Asn 750	Leu 750	Gln 750	His 750	Phe 750	Ser 750	Trp 750	Asp 750	Lys 750	Lys 750

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Leu	His	Asn	Phe	Phe	Lys	Pro	Pro	Phe	Glu	His	Asn	Leu	Val	Leu	Asn
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Gly Leu Phe Gly Ser Gln Lys Ser Ser Met Pro Ser Val Gly Asp Asp 1105	1110	1115 1120
Val Val Val Leu Gly Glu Val Lys Lys Glu Ala Ala Ala Pro Leu Pro 1125	1130	1135
Val Asn Met Asn Leu Thr Leu Asp Leu Asn Asp Gly Ile Arg Phe Ala 1140	1145	1150
Gly Tyr Gly Ala Asp Val Thr Ile Gly Gly Lys Leu Thr Leu Thr Ala 1155	1160	1165
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Leu Asn Ser Pro Arg Ile Thr Leu Thr Ala Asn Glu Pro Met Ser Glu 1235	1240	1245
Lys Asp Lys Leu Ser Trp Leu Ile Leu Asn Arg Ala Gly Ser Gly Ser 1250	1255	1260
Ser Gly Asp Asn Ala Ala Leu Ser Ala Ala Ala Gly Ala Leu Leu Ala 1265	1270	1275 1280
Gly Gln Ile Asn Asp Arg Ile Gly Leu Val Asp Asp Leu Gly Phe Thr 1285	1290	1295
Ser Lys Arg Ser Arg Asn Ala Gln Thr Gly Glu Leu Asn Pro Ala Glu 1300	1305	1310
Gln Val Leu Thr Val Gly Lys Gln Leu Thr Gly Lys Leu Tyr Ile Gly 1315	1320	1325
Tyr Glu Tyr Ser Ile Ser Ser Ala Glu Gln Ser Val Lys Leu Ile Tyr 1330	1335	1340
Arg Leu Thr Arg Ala Ile Gln Ala Val Ala Arg Ile Gly Ser Arg Ser 1345	1350	1355 1360
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<210> 1185

<211> 4170

<212> DNA

<213> *Neisseria meningitidis*

<400> 1185

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<210> 1186

<211> 1389

<212> PRT

<213> Neisseria meningitidis

<400> 1186

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      20              25              30

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      35              40              45

Ala Val Cys Phe Leu Gly Trp Leu Ala Gly Thr Glu Ala Gly Leu Arg
      50              55              60

Phe Gly Leu Tyr Gln Ile Pro Ser Trp Phe Gly Val Asn Ile Ser Ser
      65              70              75              80

Gln Asn Leu Lys Gly Thr Leu Leu Asp Gly Phe Asp Gly Asp Asn Trp
      85              90              95

Ser Ile Glu Thr Glu Gly Ala Asp Leu Lys Ile Ser Arg Phe Arg Phe
      100             105             110

Ala Trp Lys Pro Ser Glu Leu Met Arg Arg Ser Leu His Ile Thr Glu
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Ala	Phe	Asp	Lys	Gln	Thr	Val	Tyr	Leu	Glu	Arg	Leu	Asp	Ala	Ser	Tyr	180	185	190
Arg	Tyr	Asp	Arg	Lys	Gly	His	Arg	Leu	Asp	Leu	Lys	Ala	Ala	Asp	Thr	195	200	205
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Val	Ile	His	Pro	Phe	Ala	Glu	Ser	Leu	Asp	Lys	Thr	Leu	Glu	Glu	Val	275	280	285
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Gly	Phe	Ala	Asp	Arg	Asn	Gly	Ile	Pro	Val	Arg	Gln	Val	Leu	Gly	Ser	340	345	350
Phe	Val	Ile	Arg	Gln	Asp	Gly	Thr	Val	His	Ile	Gly	Asn	Thr	Ser	Val	355	360	365
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Ile	Gly	Thr	Ala	Arg	Thr	Asp	Gly	Ser	Leu	Ala	Ile	Ala	Ser	Asp	Pro	435	440	445	
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Arg	Leu	Leu	Lys	Leu	Asp	Ile	Arg	Ser	Arg	Ala	Phe	Asp	Pro	Ser	Arg	485	490	495	
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Ala	Gly	Glu	Leu	Ala	Lys	Glu	Lys	Phe	Thr	Gly	Lys	Met	Arg	Phe	Leu	515	520	525	
Pro	Gly	Thr	Phe	Asn	Gly	Val	Pro	Ile	Ala	Gly	Ser	Ala	Asp	Ile	Val	530	535	540	
Tyr	Glu	Ser	Arg	His	Leu	Pro	Arg	Ala	Ala	Val	Asp	Leu	Arg	Leu	Gly	545	550	555	560
Arg	Asn	Ile	Ile	Lys	Thr	Asp	Gly	Gly	Phe	Gly	Lys	Lys	Gly	Asp	Arg	565	570	575	
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Lys	Gly	Ser	Pro	Asp	Thr	Ser	Arg	Pro	Ile	Arg	Ala	Asp	Ile	Lys	Gly	645	650	655	
Ser	Arg	Leu	Ser	Leu	Ser	Gly	Gly	Ala	Glu	Val	Val	Asp	Thr	Ala	Asp	660	665	670	
Leu	Met	Leu	Asp	Gly	Thr	Gly	Val	Gln	His	Arg	Ile	Arg	Thr	His	Ala	675	680	685	
Ala	Met	Thr	Leu	Asp	Gly	Lys	Pro	Phe	Lys	Phe	Asp	Leu	Asp	Ala	Ser	690	695	700	
Gly	Gly	Ile	Asn	Arg	Glu	Leu	Thr	Arg	Trp	Lys	Gly	Ser	Ile	Gly	Ile	705	710	715	720
Leu	Asp	Ile	Gly	Gly	Ala	Phe	Asn	Leu	Lys	Leu	Gln	Asn	Arg	Met	Thr	725	730	735	

Leu Glu Ala Gly Ala Glu Arg Val Ala Ala Ser Ala Ala Asn Trp Gln  
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 Ala Met Gly Gly Ser Leu Asn Leu Gln His Phe Ser Trp Asp Lys Lys  
 755 760 765  
 Thr Gly Ile Ser Ala Lys Gly Gly Ala His Gly Leu His Ile Ala Glu  
 770 775 780  
 Leu His Asn Phe Phe Lys Pro Pro Phe Glu His Asn Leu Val Leu Asn  
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<213> Neisseria gonorrhoeae

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<211> 1354

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1188

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Phe Leu Gly Trp Ile Ala Gly Thr Glu Ala Gly Leu Arg Phe Gly Leu
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Tyr Gln Ile Pro Ser Trp Phe Gly Val Asn Ile Ser Ser Gln Asn Leu
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Lys Gly Thr Leu Leu Asp Gly Phe Asp Gly Asp Asn Trp Ser Ile Glu
    50                      55                      60

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Thr Glu Gly Ala Asp Leu Lys Ile Ser Arg Phe Arg Phe Ala Trp Lys
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Pro Ser Glu Leu Met Arg Arg Ser Leu His Ile Thr Asp Ile Ser Ala
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Gly Asp Ile Ala Ile Val Thr Lys Pro Thr Pro Pro Lys Glu Glu Arg
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Pro Pro Gln Gly Leu Pro Asp Ser Ile Asp Leu Pro Ala Ala Val Tyr  
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Leu Asp Arg Phe Glu Thr Gly Lys Ile Ser Met Gly Lys Thr Phe Asp  
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Lys Gln Thr Val Tyr Leu Glu Arg Leu Asn Ala Ala Tyr Arg Tyr Asp  
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Arg Lys Gly His Arg Leu Asp Leu Lys Ala Ala Asp Thr Pro Trp Ser  
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Ser Ser Ser Gly Ser Ala Ser Val Gly Leu Lys Lys Pro Phe Ala Leu  
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Asp Thr Ala Ile Tyr Thr Lys Gly Gly Phe Glu Gly Glu Thr Ile His  
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Ser Thr Ala Arg Leu Ser Gly Ser Leu Lys Asp Val Arg Ala Glu Leu  
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Thr Ile Asp Gly Gly Asn Ile Arg Leu Ser Gly Lys Ser Val Ile His  
225 230 235 240

Pro Phe Ala Glu Ser Leu Asp Lys Thr Leu Glu Glu Val Leu Val Lys  
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Gly Phe Asn Ile Asn Pro Ser Ala Phe Val Pro Ser Leu Pro Asp Ala  
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Gly Leu Asn Phe Asp Leu Thr Ala Ile Pro Ser Phe Ser Asp Gly Ile  
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Ala Leu Glu Gly Ser Leu Asp Leu Glu Asn Thr Lys Ala Gly Phe Ala  
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Asp Arg Asn Gly Ile Pro Val Arg Gln Val Leu Gly Gly Phe Val Ile  
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Arg Gln Asp Gly Thr Val His Ile Gly Asn Thr Ser Ala Ala Leu Leu  
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Gly Arg Gly Gly Ile Arg Leu Ser Gly Lys Ile Asp Thr Glu Lys Asp  
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Ile Leu Asp Leu Asn Ile Gly Ile Asn Ser Val Gly Ala Glu Asp Val  
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Leu Gln Thr Ala Phe Lys Gly Arg Leu Asp Gly Ser Ile Gly Ile Gly  
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Gly Thr Thr Ala Ser Pro Lys Ile Ser Trp Gln Leu Gly Thr Gly Thr  
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Ala Arg Thr Asp Gly Ser Leu Ala Ile Ala Ser Asp Pro Ala Asn Glu  
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Gln Arg Lys Leu Val Phe Asp Thr Val Asn Ile Ser Ala Gly Glu Gly  
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 Lys Leu Asp Ile Arg Ser Arg Ala Phe Asp Pro Ser Arg Ile Asp Pro  
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 Gly Lys Ala Ala Asp Ile Arg Ser Leu Asp Phe Thr Leu Lys Gly Ser  
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 Pro Gly Thr Ser Arg Pro Met Arg Ala Asp Ile Lys Gly Gly Arg Leu  
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 Glu Gly Thr Gly Ala Gln His Arg Ile Arg Thr His Ala Ala Met Thr  
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Lys Gly Ile Ser Val Thr	Gly Met Ile Lys Thr	Asp Gln Gly Leu Phe		
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Gly Ser Gln Lys Ser Ser	Met Pro Ser Val Gly	Asp Asp Val Val Val		
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Pro Arg Ile Thr Leu Thr	Ala Asn Glu Pro Met	Ser Glu Lys Asp Lys		
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<210> 1190

<211> 1354

<212> PRT

<213> *Neisseria meningitidis*

<400> 1190

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  20                      25                      30

```

```

Tyr Gln Ile Pro Ser Trp Phe Gly Val Asn Ile Ser Ser Gln Asn Leu
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```

```

Lys Gly Thr Leu Leu Asp Gly Phe Asp Gly Asp Asn Trp Ser Ile Glu
  50                      55                      60

```

```

Thr Glu Gly Ala Asp Leu Lys Ile Ser Arg Phe Arg Phe Ala Trp Lys
  65                      70                      75                      80

```

```

Pro Ser Glu Leu Met Arg Arg Ser Leu His Ile Thr Glu Ile Ser Ala
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```

```

Gly Asp Ile Ala Ile Val Thr Lys Pro Thr Pro Pro Lys Glu Glu Arg
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Pro Pro Leu Ser Leu Pro Asp Ser Ile Asp Leu Pro Ala Ala Val Tyr

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Lys	Gln	Thr	Val	Tyr	Leu	Glu	Arg	Leu	Asp	Ala	Ser	Tyr	Arg	Tyr	Asp
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Arg	Lys	Gly	His	Arg	Leu	Asp	Leu	Lys	Ala	Ala	Asp	Thr	Pro	Trp	Ser
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Ser	Ser	Ser	Gly	Ala	Ala	Ser	Val	Gly	Leu	Lys	Lys	Pro	Phe	Ala	Leu
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Ser	Thr	Ala	Arg	Leu	Ser	Gly	Ser	Leu	Lys	Asp	Val	Arg	Ala	Glu	Leu
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Pro	Phe	Ala	Glu	Ser	Leu	Asp	Lys	Thr	Leu	Glu	Glu	Val	Leu	Val	Lys
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Arg	Gln	Asp	Gly	Thr	Val	His	Ile	Gly	Asn	Thr	Ser	Ala	Ala	Leu	Leu
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Gly	Arg	Gly	Gly	Ile	Arg	Leu	Ser	Gly	Lys	Ile	Asp	Thr	Glu	Lys	Asp
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Ile	Leu	Asp	Leu	Asn	Ile	Gly	Ile	Asn	Ser	Val	Gly	Ala	Glu	Asp	Val
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Leu	Gln	Thr	Ala	Phe	Lys	Gly	Arg	Leu	Asp	Gly	Ser	Ile	Gly	Ile	Gly
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Gly	Thr	Thr	Ala	Ser	Pro	Lys	Ile	Ser	Trp	Gln	Leu	Gly	Ile	Gly	Thr
385						390					395				400
Ala	Arg	Thr	Asp	Gly	Ser	Leu	Ala	Ile	Ala	Ser	Asp	Pro	Ala	Asn	Gly
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Gln	Arg	Lys	Leu	Val	Leu	Asp	Thr	Val	Asn	Ile	Ala	Ala	Gly	Gln	Gly

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Lys Leu Asp Ile Arg Ser Arg Ala Phe Asp Pro Ser Arg Ile Asp Pro 450 455 460		
Gln Leu Pro Ala Gly Asn Ile Asn Gly Ser Ile Asn Leu Ala Gly Glu 465 470 475 480		
Leu Ala Lys Glu Lys Phe Thr Gly Lys Met Arg Phe Leu Pro Gly Thr 485 490 495		
Phe Asn Gly Val Pro Ile Ala Gly Ser Ala Asp Ile Val Tyr Glu Ser 500 505 510		
Arg His Leu Pro Arg Ala Ala Val Asp Leu Arg Leu Gly Arg Asn Ile 515 520 525		
Ile Lys Thr Asp Gly Gly Phe Gly Lys Lys Gly Asp Arg Leu Asn Leu 530 535 540		
Asn Ile Thr Ala Pro Asp Leu Ser Arg Phe Gly Phe Gly Leu Ala Gly 545 550 555 560		
Ser Leu Asn Val Arg Gly His Leu Ser Gly Asp Leu Asp Gly Gly Ile 565 570 575		
Arg Thr Phe Glu Thr Asp Leu Ser Gly Ala Ala Arg Asn Leu His Ile 580 585 590		
Gly Lys Ala Ala Asp Ile Arg Ser Leu Asp Phe Thr Leu Lys Gly Ser 595 600 605		
Pro Asp Thr Ser Arg Pro Ile Arg Ala Asp Ile Lys Gly Ser Arg Leu 610 615 620		
Ser Leu Ser Gly Gly Ala Ala Val Val Asp Thr Ala Asp Leu Met Leu 625 630 635 640		
Asp Gly Thr Gly Val Gln His Arg Ile Arg Thr His Ala Ala Met Thr 645 650 655		
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Asn Arg Glu Leu Thr Arg Trp Lys Gly Ser Ile Gly Ile Leu Asp Ile 675 680 685		
Gly Gly Ala Phe Asn Leu Lys Leu Gln Asn Arg Met Thr Leu Glu Ala 690 695 700		
Gly Ala Glu Arg Val Ala Ala Ser Ala Ala Asn Trp Gln Ala Met Gly 705 710 715 720		
Gly Ser Leu Asn Leu Gln His Phe Ser Trp Asp Lys Lys Thr Gly Ile		

725	730	735
Ser Ala Lys Gly Gly Ala His Gly Leu His Ile Ala Glu Leu His Asn 740 745 750		
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Asn Leu Thr Leu Asp Leu Asn Asp Gly Ile Arg Phe Ala Gly Tyr Gly			
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1330

1335

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Lys Asp Ser Ala Gly Asn Gly Lys Gly Lys  
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&lt;210&gt; 1191

&lt;211&gt; 4065

&lt;212&gt; DNA

<213> *Neisseria meningitidis*

&lt;400&gt; 1191

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<210> 1192

<211> 1354

<212> PRT

<213> Neisseria meningitidis

<400> 1192

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 20              25              30

Tyr Gln Ile Pro Ser Trp Phe Gly Val Asn Ile Ser Ser Gln Asn Leu
 35              40              45

Lys Gly Thr Leu Leu Asp Gly Phe Asp Gly Asp Asn Trp Ser Ile Glu
 50              55              60

Thr Glu Gly Ala Asp Leu Lys Ile Ser Arg Phe Arg Phe Ala Trp Lys
 65              70              75              80

Pro Ser Glu Leu Met Arg Arg Ser Leu His Ile Thr Glu Ile Ser Ala
 85              90              95

Gly Asp Ile Ala Ile Val Thr Lys Pro Thr Pro Pro Lys Glu Glu Arg
100              105              110

Pro Pro Leu Ser Leu Pro Asp Ser Ile Asp Leu Pro Ala Ala Val Tyr
115              120              125

Leu Asp Arg Phe Glu Thr Gly Lys Ile Ser Met Gly Lys Ala Phe Asp
130              135              140

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Arg	Lys	Gly	His	Arg	Leu	Asp	Leu	Lys	Ala	Ala	Asp	Thr	Pro	Trp	Ser	
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Ser	Ser	Ser	Gly	Ser	Ala	Ser	Val	Gly	Leu	Lys	Lys	Pro	Phe	Ala	Leu	
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Ser	Thr	Ala	Arg	Leu	Ser	Gly	Ser	Leu	Lys	Asp	Val	Arg	Ala	Glu	Leu	
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Ala	Ile	Asp	Gly	Gly	Asn	Ile	Arg	Leu	Ser	Gly	Lys	Ser	Val	Ile	His	
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Pro	Phe	Ala	Glu	Ser	Leu	Asp	Lys	Thr	Leu	Glu	Glu	Val	Leu	Val	Lys	
				245					250					255		
Gly	Phe	Asn	Ile	Asn	Pro	Ser	Ala	Phe	Val	Pro	Ser	Leu	Pro	Asp	Ala	
			260					265					270			
Gly	Leu	Asn	Phe	Asp	Leu	Thr	Ala	Ile	Pro	Ser	Phe	Ser	Asp	Gly	Ile	
		275					280					285				
Ala	Leu	Glu	Gly	Ser	Leu	Asp	Leu	Glu	Asn	Thr	Lys	Ala	Gly	Phe	Ala	
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Asp	Arg	Asn	Gly	Ile	Pro	Val	Arg	Gln	Val	Leu	Gly	Ser	Phe	Val	Ile	
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Arg	Gln	Asp	Gly	Thr	Val	His	Ile	Gly	Asn	Thr	Ser	Val	Ala	Leu	Leu	
				325					330					335		
Gly	Arg	Gly	Gly	Ile	Arg	Leu	Ser	Gly	Lys	Ile	Asp	Thr	Glu	Lys	Asp	
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Ile	Leu	Asp	Leu	Asn	Ile	Gly	Ile	Asn	Ser	Val	Gly	Ala	Glu	Asp	Val	
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Leu	Gln	Thr	Ala	Phe	Lys	Gly	Arg	Leu	Asp	Gly	Ser	Ile	Gly	Ile	Gly	
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Gln	Arg	Lys	Leu	Val	Leu	Asp	Thr	Val	Asn	Ile	Ala	Ala	Gly	Gln	Gly	
			420					425					430			
Ser	Leu	Thr	Ala	Gln	Gly	Tyr	Leu	Glu	Leu	Phe	Lys	Asp	Arg	Leu	Leu	
		435					440					445				

Lys Leu Asp Ile Arg Ser Arg Ala Phe Asp Pro Ser Arg Ile Asp Pro  
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Gln Leu Pro Ala Gly Asn Ile Asn Gly Ser Ile Asn Leu Ala Gly Glu  
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Leu Ala Lys Glu Lys Phe Thr Gly Lys Met Arg Phe Leu Pro Gly Thr  
 485 490 495

Phe Asn Gly Val Pro Ile Ala Gly Ser Ala Asp Ile Val Tyr Glu Ser  
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Arg His Leu Pro Arg Ala Ala Val Asp Leu Arg Leu Gly Arg Asn Ile  
 515 520 525

Ile Lys Thr Asp Gly Gly Phe Gly Lys Lys Gly Asp Arg Leu Asn Leu  
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Asn Ile Thr Ala Pro Asp Leu Ser Arg Phe Gly Phe Gly Leu Ala Gly  
 545 550 555 560

Ser Leu Asn Val Arg Gly His Leu Ser Gly Asp Leu Asp Gly Gly Ile  
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Arg Thr Phe Glu Thr Asp Leu Ser Gly Ala Ala Arg Asn Leu His Ile  
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Gly Lys Ala Ala Asp Ile Arg Ser Leu Asp Phe Thr Leu Lys Gly Ser  
 595 600 605

Pro Asp Thr Ser Arg Pro Ile Arg Ala Asp Ile Lys Gly Ser Arg Leu  
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Ser Leu Ser Gly Gly Ala Glu Val Val Asp Thr Ala Asp Leu Met Leu  
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Asp Gly Thr Gly Val Gln His Arg Ile Arg Thr His Ala Ala Met Thr  
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Leu Asp Gly Lys Pro Phe Lys Phe Asp Leu Asp Ala Ser Gly Gly Ile  
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Asn Arg Glu Leu Thr Arg Trp Lys Gly Ser Ile Gly Ile Leu Asp Ile  
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Gly Gly Ala Phe Asn Leu Lys Leu Gln Asn Arg Met Thr Leu Glu Ala  
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Gly Ala Glu Arg Val Ala Ala Ser Ala Ala Asn Trp Gln Ala Met Gly  
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Gly Ser Leu Asn Leu Gln His Phe Ser Trp Asp Lys Lys Thr Gly Ile  
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Ser Ala Lys Gly Gly Ala His Gly Leu His Ile Ala Glu Leu His Asn

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Phe	Phe	Lys	Pro	Pro	Phe	Glu	His	Asn	Leu	Val	Leu	Asn	Gly	Asp	Trp
		755					760					765			
Asp	Val	Ala	Tyr	Gly	Arg	Asn	Ala	Arg	Gly	Tyr	Leu	Asn	Ile	Ser	Arg
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	930					935					940				
Gly	Ser	Leu	Asn	Ala	Ala	Val	Thr	Leu	Gly	Gly	Ser	Ile	Ala	Asp	Pro
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His	Leu	Gly	Gly	Ser	Ile	Asn	Gly	Asp	Lys	Leu	Tyr	Tyr	Arg	Asn	Gln
				965					970					975	
Thr	Gln	Gly	Ile	Ile	Leu	Asp	Asn	Gly	Ser	Leu	Arg	Ser	His	Ile	Ala
			980					985					990		
Gly	Arg	Lys	Trp	Val	Ile	Asp	Ser	Leu	Lys	Phe	Arg	His	Glu	Gly	Thr
		995					1000					1005			
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Arg Arg Leu Thr Val Ser Gly Asn Thr Arg Leu Arg Tyr Ser Pro Gln  
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 Gly Ser Gln Lys Ser Ser Met Pro Ser Val Gly Asp Asp Val Val Val  
 1075 1080 1085  
 Leu Gly Glu Val Lys Lys Glu Ala Ala Ala Pro Leu Pro Val Asn Met  
 1090 1095 1100  
 Asn Leu Thr Leu Asp Leu Asn Asp Gly Ile Arg Phe Ala Gly Tyr Gly  
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 Ala Asp Val Thr Ile Gly Gly Lys Leu Thr Leu Thr Ala Gln Ser Gly  
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 Gly Ser Val Arg Gly Val Gly Thr Val Arg Val Ile Lys Gly Arg Tyr  
 1140 1145 1150  
 Lys Ala Tyr Gly Gln Asp Leu Asp Ile Thr Lys Gly Thr Val Ser Phe  
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 Leu Ser Pro Val Gly Ala Gly Val Glu Ile Leu Gly Ser Leu Asn Ser  
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 Asn Asp Arg Ile Gly Leu Val Asp Asp Leu Gly Phe Thr Ser Lys Arg  
 1250 1255 1260  
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 1265 1270 1275 1280  
 Thr Val Gly Lys Gln Leu Thr Gly Lys Leu Tyr Ile Gly Tyr Glu Tyr  
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 Ser Ile Ser Ser Ala Glu Gln Ser Val Lys Leu Ile Tyr Arg Leu Thr  
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 Arg Ala Ile Gln Ala Val Ala Arg Ile Gly Ser Arg Ser Ser Gly Gly  
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<212> DNA  
<213> *Neisseria gonorrhoeae*

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gtccgcacgc acacgcagga cagtgaatc aaagatatgg tcgaagaaca cctgccgctc 240  
atcacgcagc agcaggaaga ggttttggat aaggaacaga cgggattcct tgccgaagaa 300  
gcaccggaca acgttaaaac aatgctccgc agcaaaggct atttcagcag caaggtcagc 360  
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gccaacgtcg gcgtcgccat cctcggcgac atcctttcag acggcaacct cgccgaatac 480  
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<213> *Neisseria gonorrhoeae*

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Ser Glu Asn Lys Ala Ala Gly Phe Ala Leu Phe Lys Ser Lys Ser Pro  
35 40 45  
Asp Thr Glu Ser Val Lys Leu Lys Pro Lys Phe Pro Val Arg Ile Asp  
50 55 60



Thr Gln Asp Ser Glu Ile Lys Asp Met Val Glu Glu His Leu Pro Leu  
 65 70 75 80

Ile Thr Gln Gln Gln Glu Glu Val Leu Asp Lys Glu Gln Thr Gly Phe  
 85 90 95

Leu Ala Glu Glu Ala Pro Asp Asn Val Lys Thr Met Leu Arg Ser Lys  
 100 105 110

Gly Tyr Phe Ser Ser Lys Val Ser Leu Thr Glu Lys Asp Gly Ala Tyr  
 115 120 125

Thr Val His Ile Thr Pro Gly Pro Arg Thr Lys Ile Ala Asn Val Gly  
 130 135 140

Val Ala Ile Leu Gly Asp Ile Leu Ser Asp Gly Asn Leu Ala Glu Tyr  
 145 150 155 160

Tyr Arg Asn Ala Leu Glu Asn Trp Gln Gln Pro Val Gly Ser Asp Phe  
 165 170 175

Asp Gln Asp Ser Trp Glu Asn Ser Lys Thr Ser Val Leu Gly Ala Val  
 180 185 190

Thr Arg Lys Gly Tyr Pro Leu Ala Lys Leu Gly Asn Thr Arg Ala Ala  
 195 200 205

Val Asn Pro Asp Thr Ala Thr Ala Asp Leu Asn Val Val Val Asp Ser  
 210 215 220

Gly Arg Pro Ile Ala Phe Gly Asp Phe Glu Ile Thr Gly Thr Gln Arg  
 225 230 235 240

Tyr Pro Glu Gln Thr Val Ser Gly Leu Ala Arg Phe Gln Pro Gly Thr  
 245 250 255

Pro Tyr Asp Leu Asp Leu Leu Leu Asp Phe Gln Gln Ala Leu Glu Gln  
 260 265 270

Asn Gly His Tyr Ser Gly Ala Ser Val Gln Ala Asp Phe Asp Arg Leu  
 275 280 285

Pro Arg Gly Pro Arg Pro Arg Gln Ser Gln Arg Asn Arg Gly Gln Thr  
 290 295 300

Pro Gln Thr Arg Asn Arg His Pro Pro Arg Phe Gly Ile Arg Phe Gly  
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Arg Gln Asn Arg Leu Arg Leu Leu Gln Pro Leu Gln Gln Arg Leu Tyr  
 325 330 335

Arg Leu Gly Arg Leu Gly Tyr Gly Gln Ile Arg Asn His Ala Cys Arg  
 340 345 350

Arg His Gln Pro Ala Ala Gln Leu Ser Gly Gln Leu Leu Asp Lys Gln  
 355 360 365

Arg Phe Leu Gln Pro Phe Asp His Pro Lys Pro Arg Lys Thr Arg Leu  
370 375 380

Leu Arg Arg His Leu Val Cys Ala Arg Pro Arg Gly His Arg Cys Gln  
385 390 395 400

Ala Gly Gly Gly Ile Ser Arg Arg Arg Pro Glu Asn Pro Arg Leu Gly  
405 410 415

Cys Arg Phe Gly Gln Gln Pro Arg His Asp Ala Asp Arg Leu Leu Glu  
420 425 430

Thr Pro Ala Ala Gln Gln Arg Ala Ala Pro Arg Lys Arg Pro Leu Pro  
435 440 445

Arg Arg Gln Asn Arg Asp Asp Phe Gly His Ile Pro Val Leu His Arg  
450 455 460

Ala Asn Pro His Leu Cys Pro Arg Arg Leu Phe Leu His Ala Arg Lys  
465 470 475 480

Gln Lys Thr Arg His Val His His Thr Arg Thr Ser Gly Leu His Arg  
485 490 495

Cys Thr Arg Gln Cys Arg Cys Pro Leu Gly Ala Asp Val Pro Gln Arg  
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Arg Arg Val Phe Arg Ala Arg Leu Arg Thr  
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<210> 1195

<211> 1848

<212> DNA

<213> Neisseria meningitidis

<400> 1195

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gcattgttca aaaacaaaag ccccgacacc gaatcagtca aattaaaacc caaattcccc 180
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<210> 1196

<211> 615

<212> PRT

<213> Neisseria meningitidis

<400> 1196

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Asp Thr Glu Ser Val Lys Leu Lys Pro Lys Phe Pro Val Leu Ile Asp
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Thr Gln Asp Ser Glu Ile Lys Asp Met Val Glu Glu His Leu Pro Leu
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Ile Thr Gln Gln Gln Glu Glu Val Leu Asp Lys Glu Gln Thr Gly Phe
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Leu Ala Glu Glu Ala Pro Asp Asn Val Lys Thr Met Leu Arg Ser Lys
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Gly Tyr Phe Ser Ser Lys Val Ser Leu Thr Glu Lys Asp Gly Ala Tyr
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Thr Val His Ile Thr Pro Gly Pro Arg Thr Lys Ile Ala Asn Val Gly
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Val Ala Ile Leu Gly Asp Ile Leu Ser Asp Gly Asn Leu Ala Glu Tyr
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Tyr Arg Asn Ala Leu Glu Asn Trp Gln Gln Pro Val Gly Ser Asp Phe
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Asp Gln Asp Ser Trp Glu Asn Ser Lys Thr Ser Val Leu Gly Ala Val
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Thr Arg Lys Ala Tyr Pro Leu Ala Lys Leu Gly Asn Thr Gln Ala Ala
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Pro	Tyr	Asp	Leu	Asp	Leu	Leu	Leu	Asp	Phe	Gln	Gln	Ala	Leu	Glu	Gln	
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Val	Ser	Tyr	Asn	Arg	Ser	Thr	Thr	Gln	Asn	Leu	Glu	Lys	Arg	Ala	Phe	
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Ser	Gly	Gly	Val	Trp	Tyr	Val	Arg	Asp	Arg	Ala	Gly	Ile	Asp	Ala	Arg	
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Leu	Gly	Ala	Glu	Phe	Leu	Ala	Glu	Gly	Arg	Lys	Ile	Pro	Gly	Ser	Ala	
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Val	Asp	Leu	Gly	Asn	Ser	His	Ala	Thr	Met	Leu	Thr	Ala	Ser	Trp	Lys	
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Arg	Gln	Leu	Leu	Asn	Asn	Val	Leu	His	Pro	Glu	Asn	Gly	His	Tyr	Leu	
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Lys	Lys	Leu	Gly	Thr	Phe	Ile	Ile	Arg	Gly	Gln	Ala	Gly	Tyr	Thr	Val	
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Leu Glu Tyr Gln Leu Pro Phe Thr Arg Thr Leu Ser Gly Ala Val Phe		
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		590
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 <212> DNA  
 <213> Neisseria meningitidis

<400> 1197

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<210> 1198

<211> 615

<212> PRT

<213> *Neisseria meningitidis*

<400> 1198

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 35 40 45

Asp Thr Glu Ser Val Lys Leu Lys Pro Lys Phe Pro Val Arg Ile Asp  
 50 55 60

Thr Gln Asp Ser Glu Ile Lys Asp Met Val Glu Glu His Leu Pro Leu  
 65 70 75 80

Ile Thr Gln Gln Gln Glu Glu Val Leu Asp Lys Glu Gln Thr Gly Phe  
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Leu Ala Glu Glu Ala Pro Asp Asn Val Lys Thr Met Leu Arg Ser Lys  
 100 105 110

Gly Tyr Phe Ser Ser Lys Val Ser Leu Thr Glu Lys Asp Gly Ala Tyr  
 115 120 125

Thr Val His Ile Thr Pro Gly Pro Arg Thr Lys Ile Ala Asn Val Gly  
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Val Ala Ile Leu Gly Asp Ile Leu Ser Asp Gly Asn Leu Ala Glu Tyr  
 145 150 155 160

Tyr Arg Asn Ala Leu Glu Asn Trp Gln Gln Pro Val Gly Ser Asp Phe  
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Asp Gln Asp Ser Trp Glu Asn Ser Lys Thr Ser Val Leu Gly Ala Val  
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Thr Arg Lys Ala Tyr Pro Leu Ala Lys Leu Gly Asn Thr Arg Ala Ala  
 195 200 205

Val Asn Pro Asp Thr Ala Thr Ala Asp Leu Asn Val Val Val Asp Ser  
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Gly Arg Pro Ile Ala Phe Gly Asp Phe Glu Ile Thr Gly Thr Gln Arg  
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Tyr Pro Glu Gln Ile Val Ser Gly Leu Ala Arg Phe Gln Pro Gly Thr  
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 Pro Tyr Asp Leu Asp Leu Leu Leu Asp Phe Gln Gln Ala Leu Glu Gln  
 260 265 270  
 Asn Gly His Tyr Ser Gly Ala Ser Val Gln Ala Asp Phe Asp Arg Leu  
 275 280 285  
 Gln Gly Asp Arg Val Pro Val Lys Val Ser Val Thr Glu Val Lys Arg  
 290 295 300  
 His Lys Leu Glu Thr Gly Ile Arg Leu Asp Ser Glu Tyr Gly Leu Gly  
 305 310 315 320  
 Gly Lys Ile Ala Tyr Asp Tyr Tyr Asn Leu Phe Asn Lys Gly Tyr Ile  
 325 330 335  
 Gly Ser Val Val Trp Asp Met Asp Lys Tyr Glu Thr Thr Leu Ala Ala  
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 Gly Ile Ser Gln Pro Arg Asn Tyr Arg Gly Asn Tyr Trp Thr Ser Asn  
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 Val Ser Tyr Asn Arg Ser Thr Thr Gln Asn Leu Glu Lys Arg Ala Phe  
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 Ser Gly Gly Ile Trp Tyr Val Arg Asp Arg Ala Gly Ile Asp Ala Arg  
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 Ile Asp Leu Gly Asn Ser His Ala Thr Met Leu Thr Ala Ser Trp Lys  
 420 425 430  
 Arg Gln Leu Leu Asn Asn Val Leu His Pro Glu Asn Gly His Tyr Leu  
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 Asp Gly Lys Ile Gly Thr Thr Leu Gly Ala Phe Leu Ser Ser Thr Ala  
 450 455 460  
 Leu Ile Arg Thr Ser Ala Arg Ala Gly Tyr Phe Phe Thr Pro Glu Asn  
 465 470 475 480  
 Lys Lys Leu Gly Thr Phe Ile Ile Arg Gly Gln Ala Gly Tyr Thr Val  
 485 490 495  
 Ala Arg Asp Asn Ala Asn Val Pro Ser Gly Leu Met Phe Arg Ser Gly  
 500 505 510  
 Gly Ala Ser Ser Val Arg Gly Tyr Glu Leu Asp Ser Ile Gly Leu Ala  
 515 520 525  
 Gly Pro Asn Gly Ser Val Leu Pro Glu Arg Ala Leu Leu Val Gly Ser  
 530 535 540

Leu Glu Tyr Gln Leu Pro Phe Thr Arg Thr Leu Ser Gly Ala Val Phe  
545 550 555 560

His Asp Met Gly Asp Ala Ala Ala Asn Phe Lys Arg Met Lys Leu Lys  
565 570 575

His Gly Ser Gly Leu Gly Val Arg Trp Phe Ser Pro Leu Ala Pro Phe  
580 585 590

Ser Phe Asp Ile Ala Tyr Gly His Ser Asp Lys Lys Ile Arg Trp His  
595 600 605

Ile Ser Leu Gly Thr Arg Phe  
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<210> 1199

<211> 1290

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1199

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<210> 1200

<211> 429

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1200

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Ala Cys Gly Gly Gly Gly Gly Gly Ser Pro Asp Val Lys Ser Ala Asp  
20 25 30



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	35						40					45				
Gly	Val	Leu	Pro	Lys	Glu	Lys	Lys	Asp	Glu	Glu	Ala	Ala	Gly	Gly	Ala	
	50					55					60					
Pro	Gln	Ala	Asp	Thr	Gln	Asp	Ala	Thr	Ala	Gly	Glu	Gly	Ser	Gln	Asp	
	65				70					75					80	
Met	Ala	Ala	Val	Ser	Ala	Glu	Asn	Thr	Gly	Asn	Gly	Gly	Ala	Ala	Thr	
				85					90						95	
Thr	Asp	Asn	Pro	Lys	Asn	Glu	Asp	Ala	Gly	Ala	Gln	Asn	Asp	Met	Pro	
			100					105					110			
Gln	Asn	Ala	Ala	Glu	Ser	Ala	Asn	Gln	Thr	Gly	Asn	Asn	Gln	Pro	Ala	
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Gly	Ser	Asp	Phe	Gly	Arg	Thr	Asn	Val	Gly	Asn	Ser	Val	Val	Ile	Asp	
	145				150					155					160	
Gly	Pro	Ser	Gln	Asn	Ile	Thr	Leu	Thr	His	Cys	Lys	Gly	Asp	Ser	Cys	
				165					170						175	
Asn	Gly	Asp	Asn	Leu	Leu	Asp	Glu	Glu	Ala	Pro	Ser	Lys	Ser	Glu	Phe	
			180					185					190			
Glu	Lys	Leu	Ser	Asp	Glu	Glu	Lys	Ile	Lys	Arg	Tyr	Lys	Lys	Asp	Glu	
		195					200					205				
Gln	Arg	Glu	Asn	Phe	Val	Gly	Leu	Val	Ala	Asp	Arg	Val	Lys	Lys	Asp	
	210					215					220					
Gly	Thr	Asn	Lys	Tyr	Ile	Ile	Phe	Tyr	Thr	Asp	Lys	Pro	Pro	Thr	Arg	
	225				230					235					240	
Ser	Ala	Arg	Ser	Arg	Arg	Ser	Leu	Pro	Ala	Glu	Ile	Pro	Leu	Ile	Pro	
				245					250					255		
Val	Asn	Gln	Ala	Asp	Thr	Leu	Ile	Val	Asp	Gly	Glu	Ala	Val	Ser	Leu	
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Thr	Gly	His	Ser	Gly	Asn	Ile	Phe	Ala	Pro	Glu	Gly	Asn	Tyr	Arg	Tyr	
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Leu	Thr	Tyr	Gly	Ala	Glu	Lys	Leu	Pro	Gly	Gly	Ser	Tyr	Ala	Leu	Arg	
	290					295					300					
Val	Gln	Gly	Glu	Pro	Ala	Lys	Gly	Glu	Met	Leu	Val	Gly	Thr	Ala	Val	
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Tyr	Asn	Gly	Glu	Val	Leu	His	Phe	His	Met	Glu	Asn	Gly	Arg	Pro	Tyr	
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Pro Ser Gly Gly Arg Phe Ala Ala Lys Val Asp Phe Gly Ser Lys Ser  
340 345 350

Val Asp Gly Ile Ile Asp Ser Gly Asp Asp Leu His Met Gly Thr Gln  
355 360 365

Lys Phe Lys Ala Ala Ile Asp Gly Asn Gly Phe Lys Gly Thr Trp Thr  
370 375 380

Glu Asn Gly Gly Gly Asp Val Ser Gly Arg Phe Tyr Gly Pro Ala Gly  
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Gly Gly Phe Gly Val Phe Ala Gly Lys Lys Asp Arg Asp  
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<210> 1201

<211> 1467

<212> DNA

<213> Neisseria meningitidis

<400> 1201

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<210> 1202

<211> 488

<212> PRT

<213> Neisseria meningitidis

<400> 1202

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Thr	Leu	Ser	Lys	Pro	Ala	Ala	Pro	Val	Val	Ser	Glu	Lys	Glu	Thr	Glu
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	50					55					60				
Ser	Ala	Gln	Gly	Ser	Gln	Asp	Met	Ala	Ala	Val	Ser	Glu	Glu	Asn	Thr
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Gly	Asn	Gly	Gly	Ala	Val	Thr	Ala	Asp	Asn	Pro	Lys	Asn	Glu	Asp	Glu
			85						90					95	
Val	Ala	Gln	Asn	Asp	Met	Pro	Gln	Asn	Ala	Ala	Gly	Thr	Asp	Ser	Ser
			100					105					110		
Thr	Pro	Asn	His	Thr	Pro	Asp	Pro	Asn	Met	Leu	Ala	Gly	Asn	Met	Glu
		115					120					125			
Asn	Gln	Ala	Thr	Asp	Ala	Gly	Glu	Ser	Ser	Gln	Pro	Ala	Asn	Gln	Pro
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Asp	Met	Ala	Asn	Ala	Ala	Asp	Gly	Met	Gln	Gly	Asp	Asp	Pro	Ser	Ala
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Gly	Gly	Gln	Asn	Ala	Gly	Asn	Thr	Ala	Ala	Gln	Gly	Ala	Asn	Gln	Ala
			165						170					175	
Gly	Asn	Asn	Gln	Ala	Ala	Gly	Ser	Ser	Asp	Pro	Ile	Pro	Ala	Ser	Asn
			180					185					190		
Pro	Ala	Pro	Ala	Asn	Gly	Gly	Ser	Asn	Phe	Gly	Arg	Val	Asp	Leu	Ala
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	210					215					220				
Cys	Lys	Gly	Asp	Ser	Cys	Ser	Gly	Asn	Asn	Phe	Leu	Asp	Glu	Glu	Val
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Gln	Leu	Lys	Ser	Glu	Phe	Glu	Lys	Leu	Ser	Asp	Ala	Asp	Lys	Ile	Ser
			245						250					255	
Asn	Tyr	Lys	Lys	Asp	Gly	Lys	Asn	Asp	Lys	Phe	Val	Gly	Leu	Val	Ala
		260						265					270		
Asp	Ser	Val	Gln	Met	Lys	Gly	Ile	Asn	Gln	Tyr	Ile	Ile	Phe	Tyr	Lys
		275					280					285			
Pro	Lys	Pro	Thr	Ser	Phe	Ala	Arg	Phe	Arg	Arg	Ser	Ala	Arg	Ser	Arg

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Arg Ser Leu Pro Ala Glu Met Pro Leu Ile Pro Val Asn Gln Ala Asp				
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Thr Leu Ile Val Asp Gly Glu Ala Val Ser Leu Thr Gly His Ser Gly				
	325		330	335
Asn Ile Phe Ala Pro Glu Gly Asn Tyr Arg Tyr Leu Thr Tyr Gly Ala				
	340		345	350
Glu Lys Leu Pro Gly Gly Ser Tyr Ala Leu Arg Val Gln Gly Glu Pro				
	355		360	365
Ala Lys Gly Glu Met Leu Ala Gly Ala Ala Val Tyr Asn Gly Glu Val				
	370		375	380
Leu His Phe His Thr Glu Asn Gly Arg Pro Tyr Pro Thr Arg Gly Arg				
	385		390	395 400
Phe Ala Ala Lys Val Asp Phe Gly Ser Lys Ser Val Asp Gly Ile Ile				
	405		410	415
Asp Ser Gly Asp Asp Leu His Met Gly Thr Gln Lys Phe Lys Ala Ala				
	420		425	430
Ile Asp Gly Asn Gly Phe Lys Gly Thr Trp Thr Glu Asn Gly Ser Gly				
	435		440	445
Asp Val Ser Gly Lys Phe Tyr Gly Pro Ala Gly Glu Glu Val Ala Gly				
	450		455	460
Lys Tyr Ser Tyr Arg Pro Thr Asp Ala Glu Lys Gly Gly Phe Gly Val				
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Phe Ala Gly Lys Lys Glu Gln Asp				
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<210> 1203

<211> 1494

<212> DNA

<213> Neisseria meningitidis

<400> 1203

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<210> 1204

<211> 497

<212> PRT

<213> *Neisseria meningitidis*

<400> 1204

Met Phe Lys Arg Ser Val Ile Ala Met Ala Cys Ile Val Ala Leu Ser  
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35 40 45

Glu Val Leu Pro Lys Glu Lys Lys Asp Glu Glu Ala Val Ser Gly Ala  
50 55 60

Pro Gln Ala Asp Thr Gln Asp Ala Thr Ala Gly Lys Gly Gly Gln Asp  
65 70 75 80

Met Ala Ala Val Ser Ala Glu Asn Thr Gly Asn Gly Gly Ala Ala Thr  
85 90 95

Thr Asp Asn Pro Glu Asn Lys Asp Glu Gly Pro Gln Asn Asp Met Pro  
100 105 110

Gln Asn Ala Ala Asp Thr Asp Ser Ser Thr Pro Asn His Thr Pro Ala  
115 120 125

Pro Asn Met Pro Thr Arg Asp Met Gly Asn Gln Ala Pro Asp Ala Gly  
130 135 140

Glu Ser Ala Gln Pro Ala Asn Gln Pro Asp Met Ala Asn Ala Ala Asp  
145 150 155 160

Gly Met Gln Gly Asp Asp Pro Ser Ala Gly Glu Asn Ala Gly Asn Thr  
165 170 175

Ala Asp Gln Ala Ala Asn Gln Ala Glu Asn Asn Gln Val Gly Gly Ser  
180 185 190

Gln	Asn	Pro	Ala	Ser	Ser	Thr	Asn	Pro	Asn	Ala	Thr	Asn	Gly	Gly	Ser	195	200	205
Asp	Phe	Gly	Arg	Ile	Asn	Val	Ala	Asn	Gly	Ile	Lys	Leu	Asp	Ser	Gly	210	215	220
Ser	Glu	Asn	Val	Thr	Leu	Thr	His	Cys	Lys	Asp	Lys	Val	Cys	Asp	Arg	225	230	235
Asp	Phe	Leu	Asp	Glu	Glu	Ala	Pro	Pro	Lys	Ser	Glu	Phe	Glu	Lys	Leu	245	250	255
Ser	Asp	Glu	Glu	Lys	Ile	Asn	Lys	Tyr	Lys	Lys	Asp	Glu	Gln	Arg	Glu	260	265	270
Asn	Phe	Val	Gly	Leu	Val	Ala	Asp	Arg	Val	Glu	Lys	Asn	Gly	Thr	Asn	275	280	285
Lys	Tyr	Val	Ile	Ile	Tyr	Lys	Asp	Lys	Ser	Ala	Ser	Ser	Ser	Ser	Ala	290	295	300
Arg	Phe	Arg	Arg	Ser	Ala	Arg	Ser	Arg	Arg	Ser	Leu	Pro	Ala	Glu	Met	305	310	315
Pro	Leu	Ile	Pro	Val	Asn	Gln	Ala	Asp	Thr	Leu	Ile	Val	Asp	Gly	Glu	325	330	335
Ala	Val	Ser	Leu	Thr	Gly	His	Ser	Gly	Asn	Ile	Phe	Ala	Pro	Glu	Gly	340	345	350
Asn	Tyr	Arg	Tyr	Leu	Thr	Tyr	Gly	Ala	Glu	Lys	Leu	Ser	Gly	Gly	Ser	355	360	365
Tyr	Ala	Leu	Ser	Val	Gln	Gly	Glu	Pro	Ala	Lys	Gly	Glu	Met	Leu	Ala	370	375	380
Gly	Thr	Ala	Val	Tyr	Asn	Gly	Glu	Val	Leu	His	Phe	His	Met	Glu	Asn	385	390	395
Gly	Arg	Pro	Ser	Pro	Ser	Gly	Gly	Arg	Phe	Ala	Ala	Lys	Val	Asp	Phe	405	410	415
Gly	Ser	Lys	Ser	Val	Asp	Gly	Ile	Ile	Asp	Ser	Gly	Asp	Asp	Leu	His	420	425	430
Met	Gly	Thr	Gln	Lys	Phe	Lys	Ala	Val	Ile	Asp	Gly	Asn	Gly	Phe	Lys	435	440	445
Gly	Thr	Trp	Thr	Glu	Asn	Gly	Gly	Gly	Asp	Val	Ser	Gly	Arg	Phe	Tyr	450	455	460
Gly	Pro	Ala	Gly	Glu	Glu	Val	Ala	Gly	Lys	Tyr	Ser	Tyr	Arg	Pro	Thr	465	470	475
Asp	Ala	Glu	Lys	Gly	Gly	Phe	Gly	Val	Phe	Ala	Gly	Lys	Lys	Glu	Gln	485	490	495

Asp

<210> 1205  
<211> 549  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 1205  
atgcacaccg gacaggcggt aagccgggtt ctgtctcgga cagtcattcc tctaggcata 60  
ccgttgccgg tatgctcaag caacctaccc gaacgctcgg cgggcagcgt cattgcgttc 120  
tgtttggtct tgcctcgaat ggggtttggc ctgccgcata ttgttaccaa atgcgcgggtg 180  
cgcccttacc gcaccttttc acccttgccct gtgctgccaa agcagccatc ggcgggtttg 240  
ctttctgttc cactttccgt cgcgttaccg cgcccgccg ttaaccggca ttctaccctg 300  
cggagcccgg acttttccct ccgtatgcct tacgcgatac gcggcgactg tctgcccgtc 360  
ccgtgtgcgg cgcggattat aacacgaaac gcaaaaatgc cgtctgaaac ggtacaggtt 420  
tcagacggca tacagcctaa actacacacc ctgtttcagg ctggcttcga tgaagccgtc 480  
caagtcgccc tccaatacgg ctttgtggtt gccgacttcg tagcctgtac gcaagtcttt 540  
gatgcgtga 549

<210> 1206  
<211> 182  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 1206  
Met His Thr Gly Gln Ala Val Ser Arg Val Leu Ser Arg Thr Val Ile  
1 5 10 15  
Pro Leu Gly Ile Pro Leu Pro Val Cys Ser Ser Asn Leu Pro Glu Arg  
20 25 30  
Ser Ala Gly Ser Val Ile Ala Phe Cys Leu Val Leu Leu Arg Met Gly  
35 40 45  
Phe Gly Leu Pro His Ile Val Thr Lys Cys Ala Val Arg Pro Tyr Arg  
50 55 60  
Thr Phe Ser Pro Leu Pro Val Leu Pro Lys Gln Pro Ser Ala Val Leu  
65 70 75 80  
Leu Ser Val Pro Leu Ser Val Ala Leu Pro Arg Pro Ala Val Asn Arg  
85 90 95  
His Ser Thr Leu Arg Ser Pro Asp Phe Pro Pro Arg Met Pro Tyr Ala  
100 105 110  
Ile Arg Gly Asp Cys Leu Pro Val Pro Cys Ala Ala Arg Ile Ile Thr  
115 120 125  
Arg Asn Ala Lys Met Pro Ser Glu Thr Val Gln Val Ser Asp Gly Ile  
130 135 140  
Gln Pro Lys Leu His Thr Leu Phe Gln Ala Gly Phe Asp Glu Ala Val

145	150	155	160
Gln Val Ala Val Gln Tyr Gly Phe Val Val Ala Asp Phe Val Ala Cys			
165	170	175	
Thr Gln Val Phe Asp Ala			
180			

<210> 1207  
 <211> 549  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1207  
 atgcacaccg gacaggcggt aagccggggt ctgtctcgga cagtcattcc tctaggcata 60  
 ccgttaccgg tatgctcaag caacctaccc gaacgctcgg cgggcagcgt cattgcgttc 120  
 tgtttggtct tgctccgaat ggggtttggc ctgccgcata ttgttacc aa atgcgcgggtg 180  
 cgcccttacc gcaccttttc acccttacct gtgctgcca agcagccatc ggcgggtttg 240  
 ctttctgttc cactttccgt cgcgttacgg cgcccggccg ttaacoggca ttctaccctg 300  
 cggagcccg actttccctc ccgtatgcct tacgcgatac gcggcgactg tctgcccgctc 360  
 ccgtgtgcgg cgcggtattat aacacgaaac acaaaaatgc cgtctgaaac ggtacagggt 420  
 tcagacggca tacagcctaa actacacgcc ctgtttcagg ctggcttcga tgaagccgctc 480  
 caagtcgcca tccaatacgg ctttggtggt gccgacttcg tagcctgtac gcaagtcctt 540  
 gatacgtga 549

<210> 1208  
 <211> 182  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1208  
 Met His Thr Gly Gln Ala Val Ser Arg Val Leu Ser Arg Thr Val Ile  
 1 5 10 15  
 Pro Leu Gly Ile Pro Leu Pro Val Cys Ser Ser Asn Leu Pro Glu Arg  
 20 25 30  
 Ser Ala Gly Ser Val Ile Ala Phe Cys Leu Val Leu Leu Arg Met Gly  
 35 40 45  
 Phe Gly Leu Pro His Ile Val Thr Lys Cys Ala Val Arg Pro Tyr Arg  
 50 55 60  
 Thr Phe Ser Pro Leu Pro Val Leu Pro Lys Gln Pro Ser Ala Val Leu  
 65 70 75 80  
 Leu Ser Val Pro Leu Ser Val Ala Leu Pro Arg Pro Ala Val Asn Arg  
 85 90 95  
 His Ser Thr Leu Arg Ser Pro Asp Phe Pro Pro Arg Met Pro Tyr Ala  
 100 105 110  
 Ile Arg Gly Asp Cys Leu Pro Val Pro Cys Ala Ala Arg Ile Ile Thr  
 115 120 125



Arg Asn Thr Lys Met Pro Ser Glu Thr Val Gln Val Ser Asp Gly Ile  
130 135 140

Gln Pro Lys Leu His Ala Leu Phe Gln Ala Gly Phe Asp Glu Ala Val  
145 150 155 160

Gln Val Ala Ile Gln Tyr Gly Phe Gly Val Ala Asp Phe Val Ala Cys  
165 170 175

Thr Gln Val Phe Asp Thr  
180

<210> 1209

<211> 549

<212> DNA

<213> Neisseria meningitidis

<400> 1209

atgcacaccg gacaggcggg aagccggggt ctgtctcgga cagtcattcc tctaggcata 60  
ccgttgccgg tatgtcaag caacctaccc gaacgctcgg cgggcagcgt cattgcggtc 120  
tgtttggtct tgctccgaat ggggtttggc ctgccgcata ttgttaccaa atgcgcggtg 180  
cgcccttacc gcaccttttc acccttgccct gtgctgccaa agcagccatc ggcggttttg 240  
ctttctgttc cactttccgt cgcgttaccc cgcccgccg ttaaccggca ttctaccctg 300  
cggagcccgg actttcctcc cgtatgcct tacgcgatac gcggcgactg tctgcccgctc 360  
ccgtgtgcgg cgcggattat aacacgaaac gcaaaaatgc cgtctgaaac ggtacagggt 420  
tcagacggga tacagcctaa actacacgcc ctgtttcagg ctggcttcga taaagccgctc 480  
caagtcgccc tccaatacgg ctttggtggt gccgacttcg tagcctgtgc gcaagtcttt 540  
aatgcgtga 549

<210> 1210

<211> 182

<212> PRT

<213> Neisseria meningitidis

<400> 1210

Met His Thr Gly Gln Ala Val Ser Arg Val Leu Ser Arg Thr Val Ile  
1 5 10 15

Pro Leu Gly Ile Pro Leu Pro Val Cys Ser Ser Asn Leu Pro Glu Arg  
20 25 30

Ser Ala Gly Ser Val Ile Ala Phe Cys Leu Val Leu Leu Arg Met Gly  
35 40 45

Phe Gly Leu Pro His Ile Val Thr Lys Cys Ala Val Arg Pro Tyr Arg  
50 55 60

Thr Phe Ser Pro Leu Pro Val Leu Pro Lys Gln Pro Ser Ala Val Leu  
65 70 75 80

Leu Ser Val Pro Leu Ser Val Ala Leu Pro Arg Pro Ala Val Asn Arg  
85 90 95

His Ser Thr Leu Arg Ser Pro Asp Phe Pro Pro Arg Met Pro Tyr Ala

100                      105                      110  
 Ile Arg Gly Asp Cys Leu Pro Val Pro Cys Ala Ala Arg Ile Ile Thr  
           115                      120                      125  
 Arg Asn Ala Lys Met Pro Ser Glu Thr Val Gln Val Ser Asp Gly Ile  
           130                      135                      140  
 Gln Pro Lys Leu His Ala Leu Phe Gln Ala Gly Phe Asp Lys Ala Val  
           145                      150                      155                      160  
 Gln Val Ala Val Gln Tyr Gly Phe Gly Val Ala Asp Phe Val Ala Cys  
                          165                      170                      175  
 Ala Gln Val Phe Asn Ala  
                          180

<210> 1211  
 <211> 1179  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1211  
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 ggatggtctt atctgaagcc cgaaccgcag gctgtttata ttacggaagc ggtcaggcgc 120  
 ggcgatatca gcgggacggt ttccgcgcag ggcgagattt cgccgtccaa cctggtatcg 180  
 gtcggcgcgc aggtcttcggg gcagattaaa aagctttatg tcaaactcgg gcaacaggtc 240  
 aaaaaggcgc atttgattgc ggaaatcaat tcgaccacgc agaccaacac gatcgatatg 300  
 gaaaaatcca aattggaaac gtatcaggcg aagctgtgtg ccgcacagat tgcattgggc 360  
 agcgcgaaaa aaaaatataa gcgtcaggcg gcgtgtgtga aggatgatgc gacctctaaa 420  
 gaagatttgg aaagcgcgca ggatgcgctt gccgcgcgca aagccaatgt tgccgagttg 480  
 aaggctttaa tcagacagag caaaatttcc atcaataccg ccgagtcgga tttgggctac 540  
 acgcgcatta ccgcgacgat ggacggcacg gtgtgtgtga ttcccggtga agaggggcag 600  
 actgtgaacg cggcgacgac tacgccgacg attgtccaat tggcgaatct ggatatgatg 660  
 ttgaacaaaa tgcagattgc cgagggcgat attaccaagg tgaaggcggg gcaggatatt 720  
 tcgtttacga ttttgtccga accggatacg ccgattaagg cgaagctcga cagcgtcgac 780  
 cccgggtgta ccacgatgtc gtcgggcggc tacaacagca gtacggatac ggcttccaat 840  
 gcggtctatt attatgcccg ttcgtttgtg ccgaatccgg acggcaaaact cgccacgggg 900  
 atgacgacgc agaatacggg tgaaatcgac ggtgtgaaaa atgtgttgct tattccgtcg 960  
 ctgaccgtga aaaatcgcg cggaaggcg ttcgtacgcg tgttggtgtc ggacggcaag 1020  
 gcagtggaaac gcgaaatccg gaccggtatg aaagacagta tgaataccga agtgaaaagc 1080  
 gggttgaaag agggggacaa agtgggtatc tccgaaataa ccgcccgcga gcagcaggaa 1140  
 agcggcgaaac gcgccctagg cggcccgcgc cgccgataa 1179

<210> 1212  
 <211> 392  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1212  
 Met Ala Lys Met Met Lys Trp Ala Ala Val Ala Ala Val Ala Ala Ala  
           1                      5                      10                      15  
 Ala Val Trp Gly Gly Trp Ser Tyr Leu Lys Pro Glu Pro Gln Ala Ala  
                          20                      25                      30

Tyr Ile Thr Glu Ala Val Arg Arg Gly Asp Ile Ser Arg Thr Val Ser  
 35 40 45  
 Ala Thr Gly Glu Ile Ser Pro Ser Asn Leu Val Ser Val Gly Ala Gln  
 50 55 60  
 Ala Ser Gly Gln Ile Lys Lys Leu Tyr Val Lys Leu Gly Gln Gln Val  
 65 70 75 80  
 Lys Lys Gly Asp Leu Ile Ala Glu Ile Asn Ser Thr Thr Gln Thr Asn  
 85 90 95  
 Thr Ile Asp Met Glu Lys Ser Lys Leu Glu Thr Tyr Gln Ala Lys Leu  
 100 105 110  
 Val Ser Ala Gln Ile Ala Leu Gly Ser Ala Glu Lys Lys Tyr Lys Arg  
 115 120 125  
 Gln Ala Ala Leu Trp Lys Asp Asp Ala Thr Ser Lys Glu Asp Leu Glu  
 130 135 140  
 Ser Ala Gln Asp Ala Leu Ala Ala Ala Lys Ala Asn Val Ala Glu Leu  
 145 150 155 160  
 Lys Ala Leu Ile Arg Gln Ser Lys Ile Ser Ile Asn Thr Ala Glu Ser  
 165 170 175  
 Asp Leu Gly Tyr Thr Arg Ile Thr Ala Thr Met Asp Gly Thr Val Val  
 180 185 190  
 Ala Ile Pro Val Glu Glu Gly Gln Thr Val Asn Ala Ala Gln Ser Thr  
 195 200 205  
 Pro Thr Ile Val Gln Leu Ala Asn Leu Asp Met Met Leu Asn Lys Met  
 210 215 220  
 Gln Ile Ala Glu Gly Asp Ile Thr Lys Val Lys Ala Gly Gln Asp Ile  
 225 230 235 240  
 Ser Phe Thr Ile Leu Ser Glu Pro Asp Thr Pro Ile Lys Ala Lys Leu  
 245 250 255  
 Asp Ser Val Asp Pro Gly Leu Thr Thr Met Ser Ser Gly Gly Tyr Asn  
 260 265 270  
 Ser Ser Thr Asp Thr Ala Ser Asn Ala Val Tyr Tyr Tyr Ala Arg Ser  
 275 280 285  
 Phe Val Pro Asn Pro Asp Gly Lys Leu Ala Thr Gly Met Thr Thr Gln  
 290 295 300  
 Asn Thr Val Glu Ile Asp Gly Val Lys Asn Val Leu Leu Ile Pro Ser  
 305 310 315 320  
 Leu Thr Val Lys Asn Arg Gly Gly Lys Ala Phe Val Arg Val Leu Gly  
 325 330 335

Ala Asp Gly Lys Ala Val Glu Arg Glu Ile Arg Thr Gly Met Lys Asp  
340 345 350

Ser Met Asn Thr Glu Val Lys Ser Gly Leu Lys Glu Gly Asp Lys Val  
355 360 365

Val Ile Ser Glu Ile Thr Ala Ala Glu Gln Gln Glu Ser Gly Glu Arg  
370 375 380

Ala Leu Gly Gly Pro Pro Arg Arg  
385 390

<210> 1213

<211> .1005

<212> DNA

<213> Neisseria meningitidis

<400> 1213

gtatcgggtcg gcgcgcaggc atcggggcag attaagatac tttatgtcaa actcgggcaa 60  
cagggttaaaa agggcgattt gattgcgga atcaattcga cctcgagac caatcgcctc 120  
aatacggaaa aatccaagtt ggaaacgtat caggcgaagc tgggtgcggc acagattgca 180  
ttgggcagcg cggagaagaa atataagcgt caggcggcgt tatggaagga aaacgcgact 240  
tccaaagagg atttggaag cgcgaggat gcgtttgccg ccgccaaagc caatgttgcc 300  
gagctgaagg ctttaatcag acagagcaaa atttccatca ataccgccga gtcggaattg 360  
ggctacacgc gcattaccgc aacgatggac ggcacggttg tggcgattct cgtggaagag 420  
gggcagactg tgaacgcggc gcagtctacg ccgacgattg tccaattggc gaatctggat 480  
atgatgttga acaaaatgca gattgccgag ggcgatatta ccaaggtgaa ggcggggcag 540  
gatatttcgt ttacgatttt gtccgaaccg gatacgccga ttaaggcgaa gctcgacagc 600  
gtcgaccccg ggctgaccac gatgtcgtcg ggcggttaca acagcagtag ggatacggct 660  
tccaatgcgg tctactatta tgcccgttcg tttgtgccga atccggacgg caaactcgcc 720  
acgggggatga cgacgcagaa tacggttgaa atcgacggcg tgaaaaatgt gctgattatt 780  
ccgtcgtgta ccgtgaaaaa tcgcggcggc aaggcgtttg tgcgcgtgtt gggcgcgac 840  
ggcaaggcgg cggaacgcga aatccggacc ggtatgagag acagtatgaa taccgaagta 900  
aaaagcgggt tgaaagaggg ggacaaagtg gtcattctccg aaataaccgc cgccgagcaa 960  
caggaaagcg gcgaacgcgc cctaggcggc ccgcgcgcc gataa 1005

<210> 1214

<211> 334

<212> PRT

<213> Neisseria meningitidis

<400> 1214

Val Ser Val Gly Ala Gln Ala Ser Gly Gln Ile Lys Ile Leu Tyr Val  
1 5 10 15

Lys Leu Gly Gln Gln Val Lys Lys Gly Asp Leu Ile Ala Glu Ile Asn  
20 25 30

Ser Thr Ser Gln Thr Asn Thr Leu Asn Thr Glu Lys Ser Lys Leu Glu  
35 40 45

Thr Tyr Gln Ala Lys Leu Val Ser Ala Gln Ile Ala Leu Gly Ser Ala  
50 55 60

Glu Lys Lys Tyr Lys Arg Gln Ala Ala Leu Trp Lys Glu Asn Ala Thr  
 65 70 75 80  
 Ser Lys Glu Asp Leu Glu Ser Ala Gln Asp Ala Phe Ala Ala Ala Lys  
 85 90 95  
 Ala Asn Val Ala Glu Leu Lys Ala Leu Ile Arg Gln Ser Lys Ile Ser  
 100 105 110  
 Ile Asn Thr Ala Glu Ser Glu Leu Gly Tyr Thr Arg Ile Thr Ala Thr  
 115 120 125  
 Met Asp Gly Thr Val Val Ala Ile Leu Val Glu Glu Gly Gln Thr Val  
 130 135 140  
 Asn Ala Ala Gln Ser Thr Pro Thr Ile Val Gln Leu Ala Asn Leu Asp  
 145 150 155 160  
 Met Met Leu Asn Lys Met Gln Ile Ala Glu Gly Asp Ile Thr Lys Val  
 165 170 175  
 Lys Ala Gly Gln Asp Ile Ser Phe Thr Ile Leu Ser Glu Pro Asp Thr  
 180 185 190  
 Pro Ile Lys Ala Lys Leu Asp Ser Val Asp Pro Gly Leu Thr Thr Met  
 195 200 205  
 Ser Ser Gly Gly Tyr Asn Ser Ser Thr Asp Thr Ala Ser Asn Ala Val  
 210 215 220  
 Tyr Tyr Tyr Ala Arg Ser Phe Val Pro Asn Pro Asp Gly Lys Leu Ala  
 225 230 235 240  
 Thr Gly Met Thr Thr Gln Asn Thr Val Glu Ile Asp Gly Val Lys Asn  
 245 250 255  
 Val Leu Ile Ile Pro Ser Leu Thr Val Lys Asn Arg Gly Gly Lys Ala  
 260 265 270  
 Phe Val Arg Val Leu Gly Ala Asp Gly Lys Ala Ala Glu Arg Glu Ile  
 275 280 285  
 Arg Thr Gly Met Arg Asp Ser Met Asn Thr Glu Val Lys Ser Gly Leu  
 290 295 300  
 Lys Glu Gly Asp Lys Val Val Ile Ser Glu Ile Thr Ala Ala Glu Gln  
 305 310 315 320  
 Gln Glu Ser Gly Glu Arg Ala Leu Gly Gly Pro Pro Arg Arg  
 325 330

<210> 1215

<211> 1179

<212> DNA

<213> Neisseria meningitidis

<400> 1215

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gtcggcgcgcg aggcacgcgg gcagattaag aaactttatg tcaaactcgg gcaacagggt 240
aaaaagggcg atttgattgc ggaaatcaat tcgacctcgc agaccaatac gctcaatacg 300
gaaaaatcca aattggaaac gtatcaggcg aagctggtgt cggcacagat tgcattgggc 360
agcgcgggaga agaaatataa gcgtcaggcg gcgttggtga aggatgatgc gaccgctaaa 420
gaagatttgg aaagcgcaca ggatgcgctt gccgccgcca aagccaatgt tgccgagctg 480
aaggctctaa tcagacagag caaaatttcc atcaataccg ccgagtcgga attgggctac 540
acgcgcatga ccgcaacgat ggacggcacg gtggtggcga ttctcgtgga agaggggcag 600
actgtgaacg cggcgcgatc tacgccgacg attgtccaat tggcgaatct ggatatgatg 660
ttgaacaaaa tgcagattgc cgagggcgat attaccaagg tgaaggcggg gcaggatatt 720
tcgtttacga ttttgtccga accggatacg ccgattaagg cgaagctcga cagcgtcgac 780
cccgggctga ccacgatgac gtcggggcgc tacaacagca gtacggatac ggcttccaat 840
gcggtctact attatgccg ttcgtttgtg ccgaatccgg acggcaaact cgccacgggg 900
atgacgacgc agaatacggg tgaaatcgac ggtgtgaaaa atgtgctgat tattccgtcg 960
ctgaccgtga aaaatcgcg cggcagggcg tttgtgcgcg tggtgggtgc agacggcaag 1020
gcggcggaac gcgaaatccg gaccgggtatg agagacagta tgaataccga agtaaaaagc 1080
gggttgaaag agggggacaa agtggtcac tccgaaataa ccgccgccga gcagcaggaa 1140
agcggcgaac gcgccctagg cggcccgccg cgccgataa 1179
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<210> 1216

<211> 392

<212> PRT

<213> *Neisseria meningitidis*

<400> 1216

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Met Ala Lys Met Met Lys Trp Ala Ala Val Ala Ala Val Ala Ala Ala
 1              5              10              15

Ala Val Trp Gly Gly Trp Ser Tyr Leu Lys Pro Glu Pro Gln Ala Ala
      20              25              30

Tyr Ile Thr Glu Thr Val Arg Arg Gly Asp Ile Ser Arg Thr Val Ser
      35              40              45

Ala Thr Gly Glu Ile Ser Pro Ser Asn Leu Val Ser Val Gly Ala Gln
      50              55              60

Ala Ser Gly Gln Ile Lys Lys Leu Tyr Val Lys Leu Gly Gln Gln Val
      65              70              75              80

Lys Lys Gly Asp Leu Ile Ala Glu Ile Asn Ser Thr Ser Gln Thr Asn
      85              90              95

Thr Leu Asn Thr Glu Lys Ser Lys Leu Glu Thr Tyr Gln Ala Lys Leu
      100             105             110

Val Ser Ala Gln Ile Ala Leu Gly Ser Ala Glu Lys Lys Tyr Lys Arg
      115             120             125

Gln Ala Ala Leu Trp Lys Asp Asp Ala Thr Ala Lys Glu Asp Leu Glu
      130             135             140

Ser Ala Gln Asp Ala Leu Ala Ala Ala Lys Ala Asn Val Ala Glu Leu
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145		150		155		160
Lys Ala Leu Ile	Arg Gln Ser Lys Ile	Ser Ile Asn Thr Ala Glu Ser				
	165	170			175	
Glu Leu Gly Tyr Thr Arg Ile Thr Ala Thr Met Asp Gly Thr Val Val						
	180	185			190	
Ala Ile Leu Val Glu Glu Gly Gln Thr Val Asn Ala Ala Gln Ser Thr						
	195	200			205	
Pro Thr Ile Val Gln Leu Ala Asn Leu Asp Met Met Leu Asn Lys Met						
	210	215			220	
Gln Ile Ala Glu Gly Asp Ile Thr Lys Val Lys Ala Gly Gln Asp Ile						
	225	230			235	240
Ser Phe Thr Ile Leu Ser Glu Pro Asp Thr Pro Ile Lys Ala Lys Leu						
	245	250			255	
Asp Ser Val Asp Pro Gly Leu Thr Thr Met Ser Ser Gly Gly Tyr Asn						
	260	265			270	
Ser Ser Thr Asp Thr Ala Ser Asn Ala Val Tyr Tyr Tyr Ala Arg Ser						
	275	280			285	
Phe Val Pro Asn Pro Asp Gly Lys Leu Ala Thr Gly Met Thr Thr Gln						
	290	295			300	
Asn Thr Val Glu Ile Asp Gly Val Lys Asn Val Leu Ile Ile Pro Ser						
	305	310			315	320
Leu Thr Val Lys Asn Arg Gly Gly Arg Ala Phe Val Arg Val Leu Gly						
	325	330			335	
Ala Asp Gly Lys Ala Ala Glu Arg Glu Ile Arg Thr Gly Met Arg Asp						
	340	345			350	
Ser Met Asn Thr Glu Val Lys Ser Gly Leu Lys Glu Gly Asp Lys Val						
	355	360			365	
Val Ile Ser Glu Ile Thr Ala Ala Glu Gln Gln Glu Ser Gly Glu Arg						
	370	375			380	
Ala Leu Gly Gly Pro Pro Arg Arg						
	385	390				

<210> 1217

<211> 798

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1217

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atgaaaacca agttaatcaa aatcttgacc ccctttaccg tcctgccgct gctggcttgc 60
gggcaaacgc ccgtttccaa tgccaacgcc gaatccgcgc tcaaagccga atccgccggc 120
aaatccgttg ccgcttcttt gaaagcgcgt ttggaaaaaa cctattccgc ccaagatttg 180

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aaagtgttga gcgtcagcga aacaccggtc aaaggcattt acgaagtcgt cgtcagcggc 240
aggcagatta tctacaccga tgccgaaggc ggctatatgt tcgtcggcga actcatcaac 300
atcgacacgc gcaaaaacct gaccgaagaa cgcgccgccg atttgaacaa aatcgacttc 360
gcctccctgc ctttggacaa agccatcaaa gaagtacgcg gcaacggcaa gctgaaagtc 420
gccgtcttct ccgaccccgga ttgtccgttc tgcaaacgct tggaacatga gtttgaaaaa 480
atgaccgacg tgacggttta cagctttatg atgcccattg ccggcctgca cccagatgcc 540
gcgcgcaagg cgcaaattctt atggtgtcag cccgaccgtg ccaaagcgtg gacggattgg 600
atgcgtaaaag gcaaattccc ggtcggcggc agcatctgcg acaatcccgt cgcggaacc 660
acttccttgg gcgaacagtt cggttcaac ggcacgccga cccttcgtct tccccaacgg 720
gcgcacccaa agcggttaca gcccgatgcc ccaactggag gaaatcatcc gcaaaaacca 780
gcagtaaacc cgcaatga 798

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<210> 1218

<211> 265

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1218

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Met Lys Thr Lys Leu Ile Lys Ile Leu Thr Pro Phe Thr Val Leu Pro
  1             5             10             15

Leu Leu Ala Cys Gly Gln Thr Pro Val Ser Asn Ala Asn Ala Glu Ser
      20             25             30

Ala Val Lys Ala Glu Ser Ala Gly Lys Ser Val Ala Ala Ser Leu Lys
      35             40             45

Ala Arg Leu Glu Lys Thr Tyr Ser Ala Gln Asp Leu Lys Val Leu Ser
      50             55             60

Val Ser Glu Thr Pro Val Lys Gly Ile Tyr Glu Val Val Val Ser Gly
      65             70             75             80

Arg Gln Ile Ile Tyr Thr Asp Ala Glu Gly Gly Tyr Met Phe Val Gly
      85             90             95

Glu Leu Ile Asn Ile Asp Thr Arg Lys Asn Leu Thr Glu Glu Arg Ala
      100            105            110

Ala Asp Leu Asn Lys Ile Asp Phe Ala Ser Leu Pro Leu Asp Lys Ala
      115            120            125

Ile Lys Glu Val Arg Gly Asn Gly Lys Leu Lys Val Ala Val Phe Ser
      130            135            140

Asp Pro Asp Cys Pro Phe Cys Lys Arg Leu Glu His Glu Phe Glu Lys
      145            150            155            160

Met Thr Asp Val Thr Val Tyr Ser Phe Met Met Pro Ile Ala Gly Leu
      165            170            175

His Pro Asp Ala Ala Arg Lys Ala Gln Ile Leu Trp Cys Gln Pro Asp
      180            185            190

Arg Ala Lys Ala Trp Thr Asp Trp Met Arg Lys Gly Lys Phe Pro Val
      195            200            205

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Gly Gly Ser Ile Cys Asp Asn Pro Val Ala Glu Thr Thr Ser Leu Gly  
 210 215 220  
 Glu Gln Phe Gly Phe Asn Gly Thr Pro Thr Leu Arg Leu Pro Gln Arg  
 225 230 235 240  
 Ala His Pro Lys Arg Leu Gln Pro Asp Ala Pro Thr Gly Gly Asn His  
 245 250 255  
 Pro Gln Lys Pro Ala Val Asn Pro Gln  
 260 265

<210> 1219  
 <211> 783  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1219  
 atgaaaacca agttaatcaa aatcttgacc ccctttacog tcttcccgt gctggcttgc 60  
 gggcaaacgc ccgtttccaa tgccaacgcc gaacccgcgc tcaaagccga gtccgccggc 120  
 aaatccgttg ccgcctcttt gaaagcgcgt ttggaaaaaa cctattccgc ccaagatttg 180  
 aaagtgtga gcgtcagcga aacaccggtc aaaggcattt acgaagtcgt cgtcagcggc 240  
 aggagatta tctacaccga tgccgaaggc ggctatatgt tcgtcggcga actcatcaac 300  
 atcgacacgc gcaaaaacct gaccgaagaa cgcgccgcgc atttgaacaa aatcgacttc 360  
 gcctccctgc ctttgacaa agccatcaaa gaagtgcgcg gcaacggcaa gctgaaagtc 420  
 gccgtcttct ccgaccccga ttgtccgttc tgcaaacgct tggaacacga gtttgaaaaa 480  
 atgaccgacg tgacggttta cagctttatg atgccattg ccggcctgca ccccgatgcc 540  
 gcgcgcaagg cgcaaatctt atggtgtcag ccgaccgcgc ccaaagcgtg gacggattgg 600  
 atgcgtaaag gcaaatcccc ggtcggcggc agcatctgcg acaatcccgt cgcggaaacc 660  
 acttccttgg gcgaacaatt cggcttcaac ggacgcgcga cctcgtctt ccccaacggg 720  
 cgcagccaaa gcggctacag cccgatgcc caactggagg aaatcatccg caaaaatcaa 780  
 taa 783

<210> 1220  
 <211> 260  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1220  
 Met Lys Thr Lys Leu Ile Lys Ile Leu Thr Pro Phe Thr Val Leu Pro  
 1 5 10 15  
 Leu Leu Ala Cys Gly Gln Thr Pro Val Ser Asn Ala Asn Ala Glu Pro  
 20 25 30  
 Ala Val Lys Ala Glu Ser Ala Gly Lys Ser Val Ala Ala Ser Leu Lys  
 35 40 45  
 Ala Arg Leu Glu Lys Thr Tyr Ser Ala Gln Asp Leu Lys Val Leu Ser  
 50 55 60  
 Val Ser Glu Thr Pro Val Lys Gly Ile Tyr Glu Val Val Val Ser Gly  
 65 70 75 80

Arg Gln Ile Ile Tyr Thr Asp Ala Glu Gly Gly Tyr Met Phe Val Gly  
                     85                    90                    95  
 Glu Leu Ile Asn Ile Asp Thr Arg Lys Asn Leu Thr Glu Glu Arg Ala  
                     100                    105                    110  
 Ala Asp Leu Asn Lys Ile Asp Phe Ala Ser Leu Pro Leu Asp Lys Ala  
                     115                    120                    125  
 Ile Lys Glu Val Arg Gly Asn Gly Lys Leu Lys Val Ala Val Phe Ser  
                     130                    135                    140  
 Asp Pro Asp Cys Pro Phe Cys Lys Arg Leu Glu His Glu Phe Glu Lys  
 145                    150                    155                    160  
 Met Thr Asp Val Thr Val Tyr Ser Phe Met Met Pro Ile Ala Gly Leu  
                     165                    170                    175  
 His Pro Asp Ala Ala Arg Lys Ala Gln Ile Leu Trp Cys Gln Pro Asp  
                     180                    185                    190  
 Arg Ala Lys Ala Trp Thr Asp Trp Met Arg Lys Gly Lys Phe Pro Val  
                     195                    200                    205  
 Gly Gly Ser Ile Cys Asp Asn Pro Val Ala Glu Thr Thr Ser Leu Gly  
                     210                    215                    220  
 Glu Gln Phe Gly Phe Asn Gly Thr Pro Thr Leu Val Phe Pro Asn Gly  
 225                    230                    235                    240  
 Arg Ser Gln Ser Gly Tyr Ser Pro Met Pro Gln Leu Glu Glu Ile Ile  
                     245                    250                    255  
 Arg Lys Asn Gln  
                     260

<210> 1221  
 <211> 783  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1221  
 atgaaaacca agttaatcaa aatcttgacc ccctttaccg tcctcccgt gctggcttgc 60  
 gggcaaacgc cgttttccaa tgccaacgcc gaacccgccg tcaaagccga gtccgccggc 120  
 aaatccgttg cgcctctttt gaaagcgcgt ttggaaaaaa cctattccgc ccaagatttg 180  
 aaagtgttga gcgtcagcga aacaccgggc aaaggcattt acgaagtcgt cgtcagcggc 240  
 aggcagatta tctacaccga tgccgaaggc ggctatatgt tcgtcggcga actcatcaac 300  
 atcgacacgc gcaaaaacct gaccgaagaa cgcgcgcccg atttgaacaa aatcgacttc 360  
 gcctccctgc ctttggaaca agccatcaaa gaagtgcgcg gcaacggcaa gctgaaagtc 420  
 gccgtcttct ccgaccccgga ttgtccgttc tgcaaacgct tggaacacga gtttgaaaaa 480  
 atgaccgacg tgacggttta cagctttatg atgcccattg ccggcctgca cccgatgcc 540  
 gcgcgcaagg cgcaaatctt atggtgtcag cccgaccgcg ccaaagcgtg gacggattgg 600  
 atgcgtaaag gcaaatccc ggtcggcggc agcatctgcg acaatcccgt cgcggaaacc 660  
 acttccttgg gcgaacaatt cggcttcaac ggcacgccga ccctcgtctt cccaacggg 720  
 cgcagccaaa gcggctacag cccgatgccc caactggagg aaatcatccg caaaaatcaa 780  
 taa 783

<210> 1222  
<211> 260  
<212> PRT  
<213> Neisseria meningitidis

<400> 1222  
Met Lys Thr Lys Leu Ile Lys Ile Leu Thr Pro Phe Thr Val Leu Pro  
1 5 10 15  
Leu Leu Ala Cys Gly Gln Thr Pro Val Ser Asn Ala Asn Ala Glu Pro  
20 25 30  
Ala Val Lys Ala Glu Ser Ala Gly Lys Ser Val Ala Ala Ser Leu Lys  
35 40 45  
Ala Arg Leu Glu Lys Thr Tyr Ser Ala Gln Asp Leu Lys Val Leu Ser  
50 55 60  
Val Ser Glu Thr Pro Val Lys Gly Ile Tyr Glu Val Val Val Ser Gly  
65 70 75 80  
Arg Gln Ile Ile Tyr Thr Asp Ala Glu Gly Gly Tyr Met Phe Val Gly  
85 90 95  
Glu Leu Ile Asn Ile Asp Thr Arg Lys Asn Leu Thr Glu Glu Arg Ala  
100 105 110  
Ala Asp Leu Asn Lys Ile Asp Phe Ala Ser Leu Pro Leu Asp Lys Ala  
115 120 125  
Ile Lys Glu Val Arg Gly Asn Gly Lys Leu Lys Val Ala Val Phe Ser  
130 135 140  
Asp Pro Asp Cys Pro Phe Cys Lys Arg Leu Glu His Glu Phe Glu Lys  
145 150 155 160  
Met Thr Asp Val Thr Val Tyr Ser Phe Met Met Pro Ile Ala Gly Leu  
165 170 175  
His Pro Asp Ala Ala Arg Lys Ala Gln Ile Leu Trp Cys Gln Pro Asp  
180 185 190  
Arg Ala Lys Ala Trp Thr Asp Trp Met Arg Lys Gly Lys Phe Pro Val  
195 200 205  
Gly Gly Ser Ile Cys Asp Asn Pro Val Ala Glu Thr Thr Ser Leu Gly  
210 215 220  
Glu Gln Phe Gly Phe Asn Gly Thr Pro Thr Leu Val Phe Pro Asn Gly  
225 230 235 240  
Arg Ser Gln Ser Gly Tyr Ser Pro Met Pro Gln Leu Glu Glu Ile Ile  
245 250 255  
Arg Lys Asn Gln

<210> 1223  
 <211> 619  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 1223  
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 gtcagaacat catcgaaccg ctttcctgcg gcgttacgac gatattcggc ttttcgacct 120  
 acaatttttc cgaagcctgc cggcacgcct tggcatcggg tcgcgcggtt caagtcgaat 180  
 cggcggagcg gtggcgtgaa gccgttgaaa aaaccttata tggcgagggg ggcggaatgc 240  
 agatgcaggc gcgcgtggac ggctttatcg cacaacatcg cggagcgggc gcgagaatcg 300  
 ccgagggcgg gtgtggagca gtatgcggac atcggggggc atagtgtatc aatccgtatc 360  
 cgagttttcc ggttgagca tcgtatgagt atttatgccg tcgcgcacat catccacctg 420  
 tattgcgcca ccgcctttgt cggcggcgtg tttttgaag tgctggtttt gtccgtcctg 480  
 catacgggac ggggtgtcgcg cgaggcgcgg cgcgaagtgg aaaaggcaat gtcttaccgc 540  
 gccgtcaggg tgatgccgtt tgcggtcgga ctgctgttcg ccaggggaac tctagagtcg 600  
 actgcagcag catgccctc 619

<210> 1224  
 <211> 206  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 1224  
 Met Arg Ile Thr Cys Ala Pro Met Ser Leu Leu Ser Ala Ala Val Trp  
     1                    5                    10                    15  
 Ser Val Arg Ala Val Arg Thr Ser Ser Asn Arg Phe Pro Ala Ala Leu  
             20                    25                    30  
 Arg Arg Tyr Ser Ala Phe Arg Pro Thr Ile Phe Pro Lys Pro Ala Gly  
             35                    40                    45  
 Thr Pro Trp His Arg Val Arg Arg Phe Lys Ser Asn Arg Arg Thr Arg  
     50                    55                    60  
 Gly Val Lys Pro Leu Lys Lys Pro Tyr Leu Ala Arg Gly Ala Glu Cys  
     65                    70                    75                    80  
 Arg Cys Arg Arg Ala Trp Thr Ala Leu Ser His Asn Ile Ala Glu Arg  
             85                    90                    95  
 Ala Arg Glu Ser Pro Arg Arg Cys Gly Lys Arg Tyr Ala Asp Ile Gly  
     100                    105                    110  
 Gly Asp Ser Asp Thr Ile Arg Ile Arg Val Phe Arg Leu Glu His Arg  
     115                    120                    125  
 Met Ser Ile Tyr Ala Val Ala His Ile Ile His Leu Tyr Cys Ala Thr  
     130                    135                    140  
 Ala Phe Val Gly Gly Val Phe Phe Glu Val Leu Val Leu Ser Val Leu  
     145                    150                    155                    160

His Thr Gly Arg Val Ser Arg Glu Ala Arg Arg Glu Val Glu Lys Ala  
165 170 175

Met Ser Tyr Arg Ala Val Arg Val Met Pro Phe Ala Val Gly Leu Leu  
180 185 190

Phe Ala Arg Gly Thr Leu Glu Ser Thr Ala Ala Ala Cys Pro  
195 200 205

<210> 1225

<211> 834

<212> DNA

<213> Neisseria meningitidis

<400> 1225

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atgctgatta cctgtgcgcc gatgtcgctt ttgtcggcgg cagtctggtc gattcggggt 60
gtcagaacat catcgaaccg ctttcctgcg gcgttcgcac gatattcggc ttttcaacct 120
acaatttttc cgaagcctgc cgacacgcct tggcatcggg tgcggcgggt caagtcgaat 180
cggcgggatgc gtggcgggaa gccgttgaaa aaaccttata gtccgagggg ggggggatgc 240
agatgcaggc gcgcgtggac ggctttatcg cacaacatcg cggagcgggc gcgagaatcg 300
ccgaggcggg gcgggaagcg gtatgcggat atcgggggcg atagtatac aatccgtatc 360
cgagttttcc gtttgagca tcgtatgagt atttatgccg tcgcgcacat cgttcactcg 420
tattgcgcta ttgcctttgt cggcggcggt ttttttgaag tgctggtttt gtccgtcctg 480
catacgggac ggggtgtcgc cgaggcgcgg cgcaagtgg aaaaggcaat gtcttaccgc 540
gccgtcaggg tgatgccggt tgtggtcgga ctgctgttcg ccagcggcat cgtgatggcg 600
gcaaaccgct atctttctat attgggcgaa ccgtttgcca cttccttcgg tacgatgctg 660
acgctgaaaa tcctgttggc gttcagcgta ttggcgcaact tcgccatcgc cgtcgtcaaa 720
atggcgcggt ccacactgac ggtcggttgg tcgaaataca tacacgcggt cgtctttacc 780
catatgctgc tgattgtctt tttggcaaaa gcgatgtttt atatcagctg gtaa 834

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<210> 1226

<211> 277

<212> PRT

<213> Neisseria meningitidis

<400> 1226

Met Arg Ile Thr Cys Ala Pro Met Ser Leu Leu Ser Ala Ala Val Trp  
1 5 10 15

Ser Ile Arg Val Val Arg Thr Ser Ser Asn Arg Phe Pro Ala Ala Phe  
20 25 30

Arg Arg Tyr Ser Ala Phe Gln Pro Thr Ile Phe Pro Lys Pro Ala Asp  
35 40 45

Thr Pro Trp His Arg Val Arg Arg Phe Lys Ser Asn Arg Arg Met Arg  
50 55 60

Gly Gly Lys Pro Leu Lys Lys Pro Tyr Arg Pro Arg Gly Gly Gly Cys  
65 70 75 80

Arg Cys Arg Arg Ala Trp Thr Ala Leu Ser His Asn Ile Ala Glu Arg  
85 90 95

Ala Arg Glu Ser Pro Arg Arg Cys Gly Lys Arg Tyr Ala Asp Ile Gly  
 100 105 110  
 Gly Asp Ser Asp Thr Ile Arg Ile Arg Val Phe Arg Leu Glu His Arg  
 115 120 125  
 Met Ser Ile Tyr Ala Val Ala His Ile Val His Leu Tyr Cys Ala Ile  
 130 135 140  
 Ala Phe Val Gly Gly Val Phe Phe Glu Val Leu Val Leu Ser Val Leu  
 145 150 155 160  
 His Thr Gly Arg Val Ser Arg Glu Ala Arg Arg Glu Val Glu Lys Ala  
 165 170 175  
 Met Ser Tyr Arg Ala Val Arg Val Met Pro Phe Val Val Gly Leu Leu  
 180 185 190  
 Phe Ala Ser Gly Ile Val Met Ala Ala Asn Arg Tyr Leu Ser Ile Leu  
 195 200 205  
 Gly Glu Pro Phe Ala Thr Ser Phe Gly Thr Met Leu Thr Leu Lys Ile  
 210 215 220  
 Leu Leu Ala Phe Ser Val Leu Ala His Phe Ala Ile Ala Val Val Lys  
 225 230 235 240  
 Met Ala Arg Ser Thr Leu Thr Val Gly Trp Ser Lys Tyr Ile His Ala  
 245 250 255  
 Val Val Phe Thr His Met Leu Leu Ile Val Phe Leu Ala Lys Ala Met  
 260 265 270  
 Phe Tyr Ile Ser Trp  
 275

<210> 1227

<211> 834

<212> DNA

<213> Neisseria meningitidis

<400> 1227

atgcgtatta cctgtgcgcc gatgtcgctt ttgtcggcgg cagtctgggc gattcgggct 60  
 gtcagaacat catcgaacgg ctttcctgcg gcgttccgac gatattcggc ttttcgacct 120  
 acaatttttc cgaagcctgc cggcacgcct tggcatcggg tgcggcgggt caagtcgaat 180  
 cggcggacgc gtggcgggaa gccgttgaaa aaaacttata gtccgaggag ggcggaatgc 240  
 agatgcaggc gcgcgcggac ggctttatcg cacaacatcg cggagcgggc gcgagaatcg 300  
 ccgaggcggg acgggaagcg gtatgcggac atcggggacg atagtgtac aatccgtatc 360  
 cgagttttcc ggttgagta ccgtatgagt atttatgccg tcgcgcacat cgtccacctg 420  
 tattgcgcca tcgcctttgt cggcggcgtg ttttttgaag tgctggtttt gtccgtcctg 480  
 catacgggac ggggtgtcgtg cgaggcgcgg cgcgaagtgg aaaaggcaat gtcttaccgc 540  
 gccgtcaggg tgatgccgtt tgtggtcgga ctgctgttcg ccagcggcat cgtgatggcg 600  
 gcaaacgcgt atctttctat attgggcgaa ccgtttgcc cttccttcgg tacgatgctg 660  
 acgctgaaaa tcctgtttgc gttcagcgtg ttggcgcact tcgccatcgc cgtcgtcaaa 720  
 atggcgcgtt ccacactgac cgtcggctgg tcgaaataca tacacaccgt cgtctttacc 780

catatgctgc tgattgtctt tttggcaaaa gcgatgtttt atatcagctg gtaa

834

<210> 1228

<211> 277

<212> PRT

<213> *Neisseria meningitidis*

<400> 1228

Met	Arg	Ile	Thr	Cys	Ala	Pro	Met	Ser	Leu	Leu	Ser	Ala	Ala	Val	Trp
1				5					10					15	
Ser	Ile	Arg	Ala	Val	Arg	Thr	Ser	Ser	Asn	Arg	Phe	Pro	Ala	Ala	Phe
			20					25					30		
Arg	Arg	Tyr	Ser	Ala	Phe	Arg	Pro	Thr	Ile	Phe	Pro	Lys	Pro	Ala	Gly
		35					40					45			
Thr	Pro	Trp	His	Arg	Val	Arg	Arg	Phe	Lys	Ser	Asn	Arg	Arg	Thr	Arg
	50					55					60				
Gly	Gly	Lys	Pro	Leu	Lys	Lys	Thr	Tyr	Arg	Pro	Arg	Arg	Ala	Glu	Cys
65					70				75					80	
Arg	Cys	Arg	Arg	Ala	Arg	Thr	Ala	Leu	Ser	His	Asn	Ile	Ala	Glu	Arg
				85					90					95	
Ala	Arg	Glu	Ser	Pro	Arg	Arg	Tyr	Gly	Lys	Arg	Tyr	Ala	Asp	Ile	Gly
			100					105					110		
Asp	Asp	Ser	Asp	Thr	Ile	Arg	Ile	Arg	Val	Phe	Arg	Leu	Glu	Tyr	Arg
		115					120						125		
Met	Ser	Ile	Tyr	Ala	Val	Ala	His	Ile	Val	His	Leu	Tyr	Cys	Ala	Ile
		130					135					140			
Ala	Phe	Val	Gly	Gly	Val	Phe	Phe	Glu	Val	Leu	Val	Leu	Ser	Val	Leu
145					150					155					160
His	Thr	Gly	Arg	Val	Ser	Cys	Glu	Ala	Arg	Arg	Glu	Val	Glu	Lys	Ala
				165					170					175	
Met	Ser	Tyr	Arg	Ala	Val	Arg	Val	Met	Pro	Phe	Val	Val	Gly	Leu	Leu
			180					185					190		
Phe	Ala	Ser	Gly	Ile	Val	Met	Ala	Ala	Asn	Arg	Tyr	Leu	Ser	Ile	Leu
		195					200						205		
Gly	Glu	Pro	Phe	Ala	Thr	Ser	Phe	Gly	Thr	Met	Leu	Thr	Leu	Lys	Ile
	210					215					220				
Leu	Leu	Ala	Phe	Ser	Val	Leu	Ala	His	Phe	Ala	Ile	Ala	Val	Val	Lys
225					230				235						240
Met	Ala	Arg	Ser	Thr	Leu	Thr	Val	Gly	Trp	Ser	Lys	Tyr	Ile	His	Thr
				245					250					255	

Val Val Phe Thr His Met Leu Leu Ile Val Phe Leu Ala Lys Ala Met  
 260 265 270

Phe Tyr Ile Ser Trp  
 275

<210> 1229

<211> 885

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1229

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atgctcggga tggcgcggca cgacggccag cagggcatcg ccgcgatatt gttgccacgc 60
cgccagcagt ttttcgcct cgtcttcgcc ccgataaacg cgcgtgctgc cgcacacggc 120
aaccggccgg cctccgatgc gtttttcaaa ctgccccgcc agcgttttca tgtcttcaga 180
cggcacaggg tcgtatttgg tattgccgca cacctgcacg gatgccgcgc ccaatttcgc 240
caaccgcgcc gcatccgcct ccgtctgcgc cagacagccc gtcagcgaag cggctgcggg 300
acggatcagg cggcggactt tcagataacc gttcagcgat ttttccgaca gccgcgcatt 360
cgccaaaaac agcggcacac ccgctcgccg gcatttcctt atcagattgg gccagatttc 420
ggtttccatc aaaatgccga acatcgggcg gtgttcgcgc aaaaactgcc gtacccacgt 480
ttttttgtca tacggaagat agcggcattg cgcatcggga aacagaactt gcgcgggtttc 540
ccgtcccgtc ggggtcatct gcgtcatcag cagcggcgca tcgggaaaac gccgccgcaa 600
ctcgcgtatc aagggctggg cggcacgcgt ttctccgacc gaaacggcgt gtatccaaac 660

cgcgccggta acgggattcg gatgcggctt gccgaaacgc tcgtccctat gcgcccggta 720
tgccggggca cttccggagc gtttgtccaa ataacgccgt atccatatcg gcgcaagcag 780
ccacaataca tcataaagcc attggaacat ctttctatct cctgcaaaaac aaatgccgtc 840
cgaacggttc ggacggcatt tcggcaacgg aatcaaatat cgtag 885

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<210> 1230

<211> 294

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1230

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Met Leu Gly Met Ala Arg His Asp Gly Gln Gln Gly Ile Ala Ala Ile
  1 5 10 15

Leu Leu Pro Arg Arg Gln Gln Phe Phe Arg Leu Val Phe Ala Pro Ile
  20 25 30

Asn Ala Arg Ala Ala Ala His Gly Asn Arg Pro Ala Ser Asp Ala Phe
  35 40 45

Phe Lys Leu Pro Arg Gln Arg Phe His Val Phe Arg Arg His Gln Val
  50 55 60

Val Phe Gly Ile Ala Ala His Leu His Gly Cys Arg Ala Gln Phe Arg
  65 70 75 80

Gln Pro Arg Arg Ile Arg Leu Arg Leu Arg Gln Thr Ala Arg Gln Arg
  85 90 95

Ser Gly Cys Gly Thr Asp Gln Ala Ala Asp Phe Gln Ile Thr Val Gln
  100 105 110

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Arg Phe Phe Arg Gln Pro Arg Ile Arg Gln Lys Gln Arg His Thr Arg  
 115 120 125  
 Ser Pro Ala Phe Leu His Gln Ile Gly Pro Asp Phe Gly Phe His Gln  
 130 135 140  
 Asn Ala Glu His Arg Ala Val Phe Ala Gln Lys Leu Pro Tyr Pro Arg  
 145 150 155 160  
 Phe Phe Val Ile Arg Lys Ile Ala Ala Leu Arg Ile Gly Lys Gln Asn  
 165 170 175  
 Leu Arg Gly Phe Pro Ser Arg Arg Gly His Leu Arg His Gln Gln Arg  
 180 185 190  
 Arg Ile Gly Lys Thr Pro Pro Gln Leu Ala Tyr Gln Gly Leu Gly Gly  
 195 200 205  
 Thr Arg Phe Ser Asp Arg Asn Gly Val Tyr Pro Asn Arg Ala Gly Asn  
 210 215 220  
 Gly Ile Arg Met Arg Leu Ala Glu Thr Leu Val Pro Met Arg Pro Val  
 225 230 235 240  
 Cys Arg Gly Thr Ser Gly Ala Phe Val Gln Ile Thr Pro Tyr Pro Tyr  
 245 250 255  
 Arg Arg Lys Gln Pro Gln Tyr Ile Ile Lys Pro Leu Glu His Leu Ser  
 260 265 270  
 Ile Ser Cys Lys Thr Asn Ala Val Arg Thr Val Arg Thr Ala Phe Arg  
 275 280 285  
 Gln Arg Asn Gln Ile Ser  
 290

<210> 1231

<211> 885

<212> DNA

<213> Neisseria meningitidis

<400> 1231

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 aaccggccgg cctccgatgc gtttttcaaa ctgcccgcgc agcgttttca tctgttccga 180  
 cggatatgatg tcgtatattgg tattgccgca cacctgcacg gatgccgcgc ccaatttcgc 240  
 caaccgcgcc gcatccgcct ctgtctgcgc cagacacccc gtcagcgaag cggcggcagg 300  
 acggatcagg cggcggactt tcagataacc gttcaacgat ttttcgcaca gccgcgcatt 360  
 cgccaaaaac agcggcacac ccgcgcgcgc gcattccctc atcagggttg gccagatttc 420  
 ggtttccatc aaaatgccga acatcgggag gtgttcgcgc aaaaactgcc gtaccacagt 480  
 ttttttgtca tacggaagat agcggcattg cgcacgcgga aacagaactt gcgcgggttc 540  
 ccgccccgtc ggggtcatct cgcgtcatcag cagcggcgca tcgggaaaac gccgccgcaa 600  
 ctgcggtatc aaggactggg cggcacgcgt ttctccgacc gaaacggcgt gtatccaaac 660  
 cgcgccggtc acgggattcg gatacggctt gccgaaacgc tcgtcccgat gcgcccgata 720  
 tgccggggca cttccggagc gtttgtccaa ataacgccgt atccatatac gcgcaagcag 780

ccacaataca tcataaagcc attggaacat ctttctatatt cctgcaaaac aaatgccgtc 840  
tgaacgggttc agacggcatt tcggcaacgg aatcaaatat cgtag 885

<210> 1232

<211> 294

<212> PRT

<213> Neisseria meningitidis

<400> 1232

Met	Leu	Gly	Met	Ala	Arg	His	Asp	Asp	Gln	Gln	Arg	Ile	Ala	Ala	Ile	1	5	10	15
Leu	Leu	Pro	Arg	Arg	Gln	Gln	Phe	Phe	Arg	Leu	Val	Phe	Thr	Pro	Ile	20	25	30	
Asn	Ala	Arg	Ala	Ala	Ala	His	Gly	Asn	Arg	Pro	Ala	Ser	Asp	Ala	Phe	35	40	45	
Phe	Lys	Leu	Pro	Arg	Gln	Arg	Phe	His	Leu	Phe	Arg	Arg	Tyr	Asp	Val	50	55	60	
Val	Phe	Gly	Ile	Ala	Ala	His	Leu	His	Gly	Cys	Arg	Ala	Gln	Phe	Arg	65	70	75	80
Gln	Pro	Arg	Arg	Ile	Arg	Leu	Cys	Leu	Arg	Gln	Thr	Pro	Arg	Gln	Arg	85	90	95	
Ser	Gly	Gly	Arg	Thr	Asp	Gln	Ala	Ala	Asp	Phe	Gln	Ile	Thr	Val	Gln	100	105	110	
Arg	Phe	Phe	Arg	Gln	Pro	Arg	Ile	Arg	Gln	Lys	Gln	Arg	His	Thr	Arg	115	120	125	
Ala	Pro	Ala	Phe	Pro	His	Gln	Val	Gly	Pro	Asp	Phe	Gly	Phe	His	Gln	130	135	140	
Asn	Ala	Glu	His	Arg	Ala	Val	Phe	Ala	Gln	Lys	Leu	Pro	Tyr	Pro	Arg	145	150	155	160
Phe	Phe	Val	Ile	Arg	Lys	Ile	Ala	Ala	Leu	Arg	Ile	Gly	Lys	Gln	Asn	165	170	175	
Leu	Arg	Gly	Phe	Pro	Pro	Arg	Arg	Gly	His	Leu	Arg	His	Gln	Gln	Arg	180	185	190	
Arg	Ile	Gly	Lys	Thr	Pro	Pro	Gln	Leu	Ala	Tyr	Gln	Gly	Leu	Gly	Gly	195	200	205	
Thr	Arg	Phe	Ser	Asp	Arg	Asn	Gly	Val	Tyr	Pro	Asn	Arg	Ala	Gly	Asn	210	215	220	
Gly	Ile	Arg	Ile	Arg	Leu	Ala	Glu	Thr	Leu	Val	Pro	Met	Arg	Pro	Ile	225	230	235	240
Cys	Arg	Gly	Thr	Ser	Gly	Ala	Phe	Val	Gln	Ile	Thr	Pro	Tyr	Pro	Tyr	245	250	255	

Arg Arg Lys Gln Pro Gln Tyr Ile Ile Lys Pro Leu Glu His Leu Ser  
260 265 270

Ile Ser Cys Lys Thr Asn Ala Val Xaa Thr Val Gln Thr Ala Phe Arg  
275 280 285

Gln Arg Asn Gln Ile Ser  
290

<210> 1233

<211> 885

<212> DNA

<213> Neisseria meningitidis

<400> 1233

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aacctgccgg tctccgatgc gtttttcaaa ctgccccgcc agcgttttca tctgttccga 180
cggcatcagg tcgtatttgg tattgccgca cacctgcacg gatgccgcgc ccaatttcgc 240
caaccgcgcc gcatccgcct ccgtctgtgc cagacagccc gtcagcgaag cggcggcagg 300
acggatcagg ctgcggactt tcagataacc gtttagcgat ttttccgaca gccgcgcatt 360
cgccaaaaac agcggcacac ccgtgcgccg gcattccttc atcagattgg gccagatttc 420
ggtttccatc aaaatgccga acatcggggc gtgttcgcgc aaaaactgcc gtaccacacgt 480
ttttttgtca tacggaagat agcggcattg tgcatacagga aacagaactt gcgcggtttc 540
ccgtcccgtc ggggtcatct gcgtcatcag cagcggcgca tcgggaaaac gctgccgcaa 600
ctcgcgtatc aaaggttggg cggcacgcgt ttccccgacc gaaacggcgt gtatccaaac 660
cgcgccggta acgggattcg gatacggctt gccgaaacgc tcgccccgat gcgcccgata 720
tgcaggggca cttccggagc gtttgtccaa ataacgccgt atccatatcg gcgcaagcag 780
ccacaatata tcataaagcc attggaacat ctttctattt cctgcaaaac aaatgccgtc 840
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<210> 1234

<211> 293

<212> PRT

<213> Neisseria meningitidis

<400> 1234

Met Leu Gly Met Ala Arg His Asp Asp Gln Gln Gly Ile Ala Ala Ile  
1 5 10 15

Leu Leu Pro Arg Arg Gln Gln Phe Phe Arg Leu Val Phe Thr Pro Ile  
20 25 30

Asn Ala Arg Ala Ala Ala His Gly Asn Leu Pro Val Ser Asp Ala Phe  
35 40 45

Phe Lys Leu Pro Arg Gln Arg Phe His Leu Phe Arg Arg His Gln Val  
50 55 60

Val Phe Gly Ile Ala Ala His Leu His Gly Cys Arg Ala Gln Phe Arg  
65 70 75 80

Gln Pro Arg Arg Ile Arg Leu Arg Leu Cys Gln Thr Ala Arg Gln Arg  
85 90 95

Ser Gly Gly Arg Thr Asp Gln Ala Ala Asp Phe Gln Ile Thr Val Arg  
 100 105 110  
 Phe Phe Arg Gln Pro Arg Ile Arg Gln Lys Gln Arg His Thr Arg Ala  
 115 120 125  
 Pro Ala Phe Leu His Gln Ile Gly Pro Asp Phe Gly Phe His Gln Asn  
 130 135 140  
 Ala Glu His Arg Ala Val Phe Ala Gln Lys Leu Pro Tyr Pro Arg Phe  
 145 150 155 160  
 Phe Val Ile Arg Lys Ile Ala Ala Leu Cys Ile Arg Lys Gln Asn Leu  
 165 170 175  
 Arg Gly Phe Pro Ser Arg Arg Gly His Leu Arg His Gln Gln Arg Arg  
 180 185 190  
 Ile Gly Lys Thr Leu Pro Gln Leu Ala Tyr Gln Arg Leu Gly Gly Thr  
 195 200 205  
 Arg Phe Pro Asp Arg Asn Gly Val Tyr Pro Asn Arg Ala Gly Asn Gly  
 210 215 220  
 Ile Arg Ile Arg Leu Ala Glu Thr Leu Ala Pro Met Arg Pro Ile Cys  
 225 230 235 240  
 Arg Gly Thr Ser Gly Ala Phe Val Gln Ile Thr Pro Tyr Pro Tyr Arg  
 245 250 255  
 Arg Lys Gln Pro Gln Tyr Ile Ile Lys Pro Leu Glu His Leu Ser Ile  
 260 265 270  
 Ser Cys Lys Thr Asn Ala Val Arg Thr Val Arg Thr Ala Phe Arg Gln  
 275 280 285  
 Arg Asn Gln Ile Ser  
 290

<210> 1235

<211> 1293

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1235

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 tcgattattc tgggtgcggc ggcatatcatt gcttcgacag aggggaccga gcgcgtcaga 120  
 ccgcagcgcg tggaacaaaa actgccgccg ctgtcttggg gcggcaacgg cgttcagacg 180  
 gcatattggg tgcaggaggc ggtgcagccg ggggactcgc tggcggacgt gctggcgcg 240  
 tcgggtatgg cgcgggacga gattgcccga atcacggaaa aatatggcgg cgaagccgat 300  
 ttgcggcatt tgcgtgccga ccagtcggtt catgttttgg tcggcggcga cggcagtgcg 360  
 cgcgaagtgc agttttttac cgacgaagac ggcgagcgca atctggtcgc tttggaaaaa 420  
 aaaggcggca tatggcggcg gtcggcttct gatgcggata tgaaggtttt gccgacactg 480  
 cgttcgggtcg tgggtcaaaac gtcggcgcgcg gggtcgctgg cgcgggcgga agtgcgccgtc 540  
 gaaatccgcg aatccttaag cgggattttt gccggccgct tcagccttga cggtttgaag 600

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gaaggcgatg ccgtgcgcct gctttacgac agcctgtatt tccacgggca gcagggtggcg 660
gcgggcgata ttttggcggc ggaagttgtc aagggcggca caacccatca ggcgttctat 720
taccgttcgg acaaggaagg cggagggggc ggcaattatt acgatgaaga cggcaggggtg 780
ttgcaggaaa aaggcggtt caacatcgag ccgctgggtc atacgcgcac ttcttcgccg 840
ttcggctacc gtatgcaccc catcctgcac acatggcggc tgcacacggg catcgattat 900
gccgcaccgc agggaacgcc ggtcagggct tccgccgacg gcgtgattac ctttaaaggc 960
cggaaggggc gatacggcaa cgcggtgatg atacgccacg ccaacggtgt ggaaacgctg 1020
tacgcgcact tgagcgcgtt ttgcaggca caaggcaatg tgcgcgggcg cgaggtcac 1080
ggttttgtcg gttcgacagg gcgttcgacc gggccgcacc tgcattacga ggcgcgcac 1140
aacgggcagc ccgtcaatcc tgtttcggtc gcattgccga caccgaatt gacgcaggcg 1200
gacaaggcgg cgtttgccgc gcagaaacag aaggcggacg cgctgcttgc gcgcttgccg 1260
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<210> 1236

<211> 380

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1236

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Leu Ser Trp Gly Gly Asn Gly Val Gln Thr Ala Tyr Trp Val Gln Glu
  1             5             10             15

Ala Val Gln Pro Gly Asp Ser Leu Ala Asp Val Leu Ala Arg Ser Gly
      20             25             30

Met Ala Arg Asp Glu Ile Ala Arg Ile Thr Glu Lys Tyr Gly Gly Glu
      35             40             45

Ala Asp Leu Arg His Leu Arg Ala Asp Gln Ser Val His Val Leu Val
      50             55             60

Gly Gly Asp Gly Ser Ala Arg Glu Val Gln Phe Phe Thr Asp Glu Asp
      65             70             75             80

Gly Glu Arg Asn Leu Val Ala Leu Glu Lys Lys Gly Gly Ile Trp Arg
      85             90             95

Arg Ser Ala Ser Asp Ala Asp Met Lys Val Leu Pro Thr Leu Arg Ser
      100            105            110

Val Val Val Lys Thr Ser Ala Arg Gly Ser Leu Ala Arg Ala Glu Val
      115            120            125

Pro Val Glu Ile Arg Glu Ser Leu Ser Gly Ile Phe Ala Gly Arg Phe
      130            135            140

Ser Leu Asp Gly Leu Lys Glu Gly Asp Ala Val Arg Leu Leu Tyr Asp
      145            150            155            160

Ser Leu Tyr Phe His Gly Gln Gln Val Ala Ala Gly Asp Ile Leu Ala
      165            170            175

Ala Glu Val Val Lys Gly Gly Thr Thr His Gln Ala Phe Tyr Tyr Arg
      180            185            190

Ser Asp Lys Glu Gly Gly Gly Gly Gly Asn Tyr Tyr Asp Glu Asp Gly

```

195	200	205
Arg Val Leu Gln Glu Lys Gly Gly Phe Asn Ile Glu Pro Leu Val Tyr		
210	215	220
Thr Arg Ile Ser Ser Pro Phe Gly Tyr Arg Met His Pro Ile Leu His		
225	230	235 240
Thr Trp Arg Leu His Thr Gly Ile Asp Tyr Ala Ala Pro Gln Gly Thr		
245	250	255
Pro Val Arg Ala Ser Ala Asp Gly Val Ile Thr Phe Lys Gly Arg Lys		
260	265	270
Gly Gly Tyr Gly Asn Ala Val Met Ile Arg His Ala Asn Gly Val Glu		
275	280	285
Thr Leu Tyr Ala His Leu Ser Ala Phe Ser Gln Ala Gln Gly Asn Val		
290	295	300
Arg Gly Gly Glu Val Ile Gly Phe Val Gly Ser Thr Gly Arg Ser Thr		
305	310	315 320
Gly Pro His Leu His Tyr Glu Ala Arg Ile Asn Gly Gln Pro Val Asn		
325	330	335
Pro Val Ser Val Ala Leu Pro Thr Pro Glu Leu Thr Gln Ala Asp Lys		
340	345	350
Ala Ala Phe Ala Ala Gln Lys Gln Lys Ala Asp Ala Leu Leu Ala Arg		
355	360	365
Leu Arg Gly Ile Pro Val Thr Val Ser Gln Ser Asp		
370	375	380

<210> 1237

<211> 1293

<212> DNA

<213> Neisseria meningitidis

<400> 1237

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ccgcagcgcg tggaacaaaa tctgccgccg ctgtcttggg gcggcagcgg cgttcagacg 180
gcataattggg tgcaggaggc ggtgcagccg ggcgaactgc tggcggacgt gctggcgcg 240
tcgggtatgg cgcgggacga gattgcccg atcacggaaa aatatggcgg cgaagccgat 300
ttgcggcatt tgcgtgccga ccagtcggtt catgttttgg tcggcggcga cggcggcgcg 360
cggaagtgc agttttttac cgacgaagac ggcgagcgca atctggtcgc tttggaaaag 420
aaaggcgcca tatggcggcg gtcggcttct gaggcggata tgaaggtttt gccgacgctg 480
cgttcggtcg tggcctaaac gtcggcgcg cggttcgctg cgcgggcgga agtgcccgtc 540
gaaatccgcg aatccttaag cgggattttc gccggccgct tcagccttga cggtttgaag 600
gaaggcgatg ccgtgcgcct gatgtacgac agcctgtatt tccacgggca gcaggtggcg 660
gcgggcgata ttttgccggc tgaagtcggt aaggcgggca caaggcatca ggcgttctat 720
taccgttcgg acaaggaagg cggagggggc ggcaattatt atgatgaaga cggcaaggtg 780
ttcgaggaaa aaggcggctt caacatcgag ccgtggtct atacgcgcat ttcttcgccg 840
ttcggctacc gtatgcaccc catcctgcac acatggcggc tgcacacggg catcgattat 900

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gccgcaccgc agggaacgcc ggtcagggct tccgccgacg gcgtgattac ctttaaaggc 960
cggaagggcg gatacggcaa cgcggtgatg atacgccacg ccaacggtgt ggaaacgctg 1020
tacgcgcact tgagcgcgtt ttcgcaggcg gaaggcaatg tgcgcggcgg cgagggtcatc 1080
ggttttgtcg gttcgaccgg gcgttcgacc gggccgcacc tgcattacga ggcgcgcac 1140
aacgggcagc ccgtcaatcc tgtttcggtc gcattgccga caccggaatt gacgcaggcg 1200
gacaaggcgg cgtttgccgc gcagaaacag aaggcggacg cgctgcttgc gcgcttgccg 1260
ggcataccgg ttaccgtgtc gcaatcggat tga 1293

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<210> 1238

<211> 430

<212> PRT

<213> Neisseria meningitidis

<400> 1238

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Met Ala Val Phe Pro Leu Ser Ala Lys His Arg Lys Tyr Ala Leu Arg
  1             5             10             15

Ala Leu Ala Val Ser Ile Ile Leu Val Ser Ala Ala Tyr Ile Ala Ser
      20             25             30

Thr Glu Arg Thr Glu Arg Val Arg Pro Gln Arg Val Glu Gln Asn Leu
  35             40             45

Pro Pro Leu Ser Trp Gly Gly Ser Gly Val Gln Thr Ala Tyr Trp Val
  50             55             60

Gln Glu Ala Val Gln Pro Gly Asp Ser Leu Ala Asp Val Leu Ala Arg
  65             70             75             80

Ser Gly Met Ala Arg Asp Glu Ile Ala Arg Ile Thr Glu Lys Tyr Gly
      85             90             95

Gly Glu Ala Asp Leu Arg His Leu Arg Ala Asp Gln Ser Val His Val
  100            105            110

Leu Val Gly Gly Asp Gly Gly Ala Arg Glu Val Gln Phe Phe Thr Asp
  115            120            125

Glu Asp Gly Glu Arg Asn Leu Val Ala Leu Glu Lys Lys Gly Gly Ile
  130            135            140

Trp Arg Arg Ser Ala Ser Glu Ala Asp Met Lys Val Leu Pro Thr Leu
  145            150            155            160

Arg Ser Val Val Val Lys Thr Ser Ala Arg Gly Ser Leu Ala Arg Ala
      165            170            175

Glu Val Pro Val Glu Ile Arg Glu Ser Leu Ser Gly Ile Phe Ala Gly
  180            185            190

Arg Phe Ser Leu Asp Gly Leu Lys Glu Gly Asp Ala Val Arg Leu Met
  195            200            205

Tyr Asp Ser Leu Tyr Phe His Gly Gln Gln Val Ala Ala Gly Asp Ile
  210            215            220

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Leu Ala Ala Glu Val Val Lys Gly Gly Thr Arg His Gln Ala Phe Tyr  
 225 230 235 240  
 Tyr Arg Ser Asp Lys Glu Gly Gly Gly Gly Asn Tyr Tyr Asp Glu  
 245 250 255  
 Asp Gly Lys Val Leu Gln Glu Lys Gly Gly Phe Asn Ile Glu Pro Leu  
 260 265 270  
 Val Tyr Thr Arg Ile Ser Ser Pro Phe Gly Tyr Arg Met His Pro Ile  
 275 280 285  
 Leu His Thr Trp Arg Leu His Thr Gly Ile Asp Tyr Ala Ala Pro Gln  
 290 295 300  
 Gly Thr Pro Val Arg Ala Ser Ala Asp Gly Val Ile Thr Phe Lys Gly  
 305 310 315 320  
 Arg Lys Gly Gly Tyr Gly Asn Ala Val Met Ile Arg His Ala Asn Gly  
 325 330 335  
 Val Glu Thr Leu Tyr Ala His Leu Ser Ala Phe Ser Gln Ala Glu Gly  
 340 345 350  
 Asn Val Arg Gly Gly Glu Val Ile Gly Phe Val Gly Ser Thr Gly Arg  
 355 360 365  
 Ser Thr Gly Pro His Leu His Tyr Glu Ala Arg Ile Asn Gly Gln Pro  
 370 375 380  
 Val Asn Pro Val Ser Val Ala Leu Pro Thr Pro Glu Leu Thr Gln Ala  
 385 390 395 400  
 Asp Lys Ala Ala Phe Ala Ala Gln Lys Gln Lys Ala Asp Ala Leu Leu  
 405 410 415  
 Ala Arg Leu Arg Gly Ile Pro Val Thr Val Ser Gln Ser Asp  
 420 425 430

<210> 1239

<211> 1293

<212> DNA

<213> Neisseria meningitidis

<400> 1239

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 ccgcagcgcg tggaacaaaa actgccgccg ctgtcttggg gcggcagcgg tgttcagacg 180  
 gcatattggg tgcaggaggc ggtgcagcca ggcgactcgc tggcggacgt gctggcgcgt 240  
 tcgggtatgg cgcgggacga aattgccga ataacggaaa aatatggcgg cgaagccgat 300  
 ttgcggcatt tgcgtgccga ccagtcggtt catgttttgg tcggcggcga cggcggcgcg 360  
 cgcgaagtgc agttttttac cgacgaagac ggcgagcgca atctggtcgc tttggaaaaa 420  
 aaaggcggca tatggcggcg gtcggcttct gaggcggata tgaaggtttt gccgacgctg 480  
 cgttcggtcg tgggtcaaaac gtcggcgcgc ggttcgctgg cgcgggcgga agtgcccgtc 540  
 gaaattcgcg aatccttaag cgggattttc gccggccgct tcagccttga tggtttgaag 600



gaaggcgatg ccgtgcgctt gatttacgac agcctgtatt tccacgggca gcaggtggcg 660  
gcgggcgata ttctggcggc ggaagtcgtt aagggcggca caaggcatca ggcgttctat 720  
taccgttcgg acaaggaagg aggagggggc ggcaattatt acgatgaaga cggcaggggtg 780  
ttgcaggaaa aaggcggctt caacatcgag ccaactggctt atacgcgcat ttcttcgccg 840  
ttcggtacc gtatgcaccc catcctgcac acttggcggc tgcacacggg catcgattat 900  
gccgcaccgc agggaacgcc ggtcagggct tccgccgacg gcgtgattac ctttaaaggc 960  
cggaaggggtg gctacggcaa cgcgggtgatg atacgccacg ccaacgggtg ggaaacgctg 1020

tatgcgcact tgagcgcgtt ttctcaggca gaaggcaatg tgcgcggcgg cgaggtcatc 1080  
ggttttgtcg gttcgaccgg gcgttcgacg gggccgcacc tgcattacga ggcgcgcac 1140  
aatgggcagc ccgtcaatcc tgtttcggtc gcattgccga caccgaatt gacgcaggcg 1200  
gacaaggcgg cgtttgccgc gcagaaacag aaggcggacg cgctgcttgc gcgcttgccg 1260  
ggcataccgg ttaccgtgtc gcaatcggat tga 1293

<210> 1240

<211> 430

<212> PRT

<213> Neisseria meningitidis

<400> 1240

Met Ala Val Phe Pro Leu Ser Ala Lys His Arg Lys Tyr Ala Leu Arg  
1 5 10 15

Ala Leu Ala Val Ser Ile Ile Leu Val Ser Ala Ala Tyr Ile Ala Ser  
20 25 30

Thr Glu Arg Thr Glu Arg Val Arg Pro Gln Arg Val Glu Gln Lys Leu  
35 40 45

Pro Pro Leu Ser Trp Gly Gly Ser Gly Val Gln Thr Ala Tyr Trp Val  
50 55 60

Gln Glu Ala Val Gln Pro Gly Asp Ser Leu Ala Asp Val Leu Ala Arg  
65 70 75 80

Ser Gly Met Ala Arg Asp Glu Ile Ala Arg Ile Thr Glu Lys Tyr Gly  
85 90 95

Gly Glu Ala Asp Leu Arg His Leu Arg Ala Asp Gln Ser Val His Val  
100 105 110

Leu Val Gly Gly Asp Gly Gly Ala Arg Glu Val Gln Phe Phe Thr Asp  
115 120 125

Glu Asp Gly Glu Arg Asn Leu Val Ala Leu Glu Lys Lys Gly Gly Ile  
130 135 140

Trp Arg Arg Ser Ala Ser Glu Ala Asp Met Lys Val Leu Pro Thr Leu  
145 150 155 160

Arg Ser Val Val Val Lys Thr Ser Ala Arg Gly Ser Leu Ala Arg Ala  
165 170 175

Glu Val Pro Val Glu Ile Arg Glu Ser Leu Ser Gly Ile Phe Ala Gly  
180 185 190

Arg Phe Ser Leu Asp Gly Leu Lys Glu Gly Asp Ala Val Arg Leu Ile  
 195 200 205  
 Tyr Asp Ser Leu Tyr Phe His Gly Gln Gln Val Ala Ala Gly Asp Ile  
 210 215 220  
 Leu Ala Ala Glu Val Val Lys Gly Gly Thr Arg His Gln Ala Phe Tyr  
 225 230 235 240  
 Tyr Arg Ser Asp Lys Glu Gly Gly Gly Gly Gly Asn Tyr Tyr Asp Glu  
 245 250 255  
 Asp Gly Arg Val Leu Gln Glu Lys Gly Gly Phe Asn Ile Glu Pro Leu  
 260 265 270  
 Val Tyr Thr Arg Ile Ser Ser Pro Phe Gly Tyr Arg Met His Pro Ile  
 275 280 285  
 Leu His Thr Trp Arg Leu His Thr Gly Ile Asp Tyr Ala Ala Pro Gln  
 290 295 300  
 Gly Thr Pro Val Arg Ala Ser Ala Asp Gly Val Ile Thr Phe Lys Gly  
 305 310 315 320  
 Arg Lys Gly Gly Tyr Gly Asn Ala Val Met Ile Arg His Ala Asn Gly  
 325 330 335  
 Val Glu Thr Leu Tyr Ala His Leu Ser Ala Phe Ser Gln Ala Glu Gly  
 340 345 350  
 Asn Val Arg Gly Gly Glu Val Ile Gly Phe Val Gly Ser Thr Gly Arg  
 355 360 365  
 Ser Thr Gly Pro His Leu His Tyr Glu Ala Arg Ile Asn Gly Gln Pro  
 370 375 380  
 Val Asn Pro Val Ser Val Ala Leu Pro Thr Pro Glu Leu Thr Gln Ala  
 385 390 395 400  
 Asp Lys Ala Ala Phe Ala Ala Gln Lys Gln Lys Ala Asp Ala Leu Leu  
 405 410 415  
 Ala Arg Leu Arg Gly Ile Pro Val Thr Val Ser Gln Ser Asp  
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<210> 1241

<211> 984

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1241

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 gaaccgcttg ccgcctacgg atggtggcgg agcggagcgg cgttgcaaga aaacgcctac 180  
 gccctttcag acggcatcaa aaccttcttg tccggcgaaa cgccccccac ggctcaagac 240  
 ggcggttcgg cagatatgcc gcctgaagcc gccgcacccg aagccgcccc gccggccggc 300

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ggaacagaat ggaaacaagg caccgaagcc gccgccgtcc gcagcggcga caaagtcttt 360
ttcgccggag attcgctgat gcagggcggtt gcgcctttcg tgcaaaaaag cctgaaacag 420
caatacggca tcgaatccgc caacctcagc aaacaaagca cggggctttc ctatccctca 480
ttcttcgact ggccgaaaac gattgaagaa accttgaaaa aacatcccga aatcagcgta 540
ctcgccgtct tcctcgcccc gaacgacccg tgggatttcc ccgtcggcaa acgctacctc 600
aaattcgctt ccgacgaatg ggcgcaagaa tacctgaaac gcgtcgaccg catccttgaa 660
gccgcacaca cgcaccgcgt ccaagtcgtc tggctcggca tcccctacat gaaaaaagtc 720
aagctcgacg gtcagatgcg ctacctcgac aaactgcttt cggaacactt gaaaggcaaa 780
atcatcctga ttcccaccgc gcaaacactg agcggcggga aaggccgcta caccgattcc 840
gtcaacgtca acggcaaac ccgtccgtac cgcagtaagg acggcataca ctttaccgcc 900
gaaggacaaa aactgctggc ggaaaaaata atggaaaaaa tcgtttttga accgagtacg 960
caaccatcaa gtacacagcc atga 984

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<210> 1242

<211> 327

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1242

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Met Lys Asn Phe Leu Ser Leu Phe Ala Ser Ile Leu Met Ser Ala Leu
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Ile Ala Val Trp Phe Ser Gln Asn Pro Ile Asn Ala Tyr Trp Gln Gln
      20                      25                      30

Thr Tyr His Arg Asn Ser Pro Leu Glu Pro Leu Ala Ala Tyr Gly Trp
      35                      40                      45

Trp Arg Ser Gly Ala Ala Leu Gln Glu Asn Ala Tyr Ala Leu Ser Asp
      50                      55                      60

Gly Ile Lys Thr Phe Leu Ser Gly Glu Thr Pro Pro Thr Ala Gln Asp
      65                      70                      75                      80

Gly Gly Ser Ala Asp Met Pro Pro Glu Ala Ala Ala Ser Glu Ala Ala
      85                      90                      95

Pro Pro Ala Gly Gly Thr Glu Trp Lys Gln Gly Thr Glu Ala Ala Ala
      100                     105                     110

Val Arg Ser Gly Asp Lys Val Phe Phe Ala Gly Asp Ser Leu Met Gln
      115                     120                     125

Gly Val Ala Pro Phe Val Gln Lys Ser Leu Lys Gln Gln Tyr Gly Ile
      130                     135                     140

Glu Ser Ala Asn Leu Ser Lys Gln Ser Thr Gly Leu Ser Tyr Pro Ser
      145                     150                     155                     160

Phe Phe Asp Trp Pro Lys Thr Ile Glu Glu Thr Leu Lys Lys His Pro
      165                     170                     175

Glu Ile Ser Val Leu Ala Val Phe Leu Gly Pro Asn Asp Pro Trp Asp
      180                     185                     190

Phe Pro Val Gly Lys Arg Tyr Leu Lys Phe Ala Ser Asp Glu Trp Ala

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195	200	205
Gln Glu Tyr Leu Lys Arg Val Asp Arg Ile Leu Glu Ala Ala His Thr		
210	215	220
His Arg Val Gln Val Val Trp Leu Gly Ile Pro Tyr Met Lys Lys Val		
225	230	235 240
Lys Leu Asp Gly Gln Met Arg Tyr Leu Asp Lys Leu Leu Ser Glu His		
245	250	255
Leu Lys Gly Lys Ile Ile Leu Ile Pro Thr Ala Gln Thr Leu Ser Gly		
260	265	270
Gly Lys Gly Arg Tyr Thr Asp Ser Val Asn Val Asn Gly Lys Pro Val		
275	280	285
Arg Tyr Arg Ser Lys Asp Gly Ile His Phe Thr Ala Glu Gly Gln Lys		
290	295	300
Leu Leu Ala Glu Lys Ile Met Glu Lys Ile Val Phe Glu Pro Ser Thr		
305	310	315 320
Gln Pro Ser Ser Thr Gln Pro		
325		

<210> 1243  
 <211> 984  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1243  
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 gaaccgcttg ccgctacgg atggtggcgg agcgggtgcgg cgttgcaaga aaacgcctac 180  
 gccctttcag acggcatcaa agccttcctg tccggcgaaa cgccgccgac ggctcaagac 240  
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 gaaacagaat ggaacaaga caccgaagcc gccgcgctcc gcagcggcga caaagtcttt 360  
 tttgtcggcg actcgctgat gcaggcgctt gcccccttcg tgcaaaaaag cctgaaacag 420  
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 ctgcgcgtct tcctcggacc gaacgaccgg tgggatttcc ccgtcggcaa actctatctc 600  
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 gccgcacaca cgcaccgct ccaagtcgtc tggtcggca tccctacat gaaaaagcc 720  
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 gtcaacgtca acggcaaacc cgtccgctac cgcagcaagg acggcataca ctttaccgcc 900  
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 caaccatcaa gtacacagcc atga 984

<210> 1244  
 <211> 327  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1244

Met Lys Asn Phe Leu Ser Leu Phe Ser Ser Ile Leu Met Ser Ala Leu  
1 5 10 15

Ile Ala Val Trp Phe Ser Gln Asn Pro Ile Asn Ala Tyr Trp Gln Gln  
20 25 30

Thr Tyr His Arg Asn Ser Pro Leu Glu Pro Leu Ala Ala Tyr Gly Trp  
35 40 45

Trp Arg Ser Gly Ala Ala Leu Gln Glu Asn Ala Tyr Ala Leu Ser Asp  
50 55 60

Gly Ile Lys Ala Phe Leu Ser Gly Glu Thr Pro Pro Thr Ala Gln Asp  
65 70 75 80

Gly Gly Ser Ala Asp Met Pro Ser Glu Ala Ala Ala Ser Glu Ala Val  
85 90 95

Pro Gln Thr Gly Glu Thr Glu Trp Lys Gln Asp Thr Glu Ala Ala Ala  
100 105 110

Val Arg Ser Gly Asp Lys Val Phe Phe Val Gly Asp Ser Leu Met Gln  
115 120 125

Gly Val Ala Pro Phe Val Gln Lys Ser Leu Lys Gln Gln Tyr Gly Ile  
130 135 140

Glu Ser Val Asn Leu Ser Lys Gln Ser Thr Gly Leu Ser Tyr Pro Ser  
145 150 155 160

Phe Phe Asp Trp Pro Lys Thr Ile Glu Glu Thr Leu Gln Lys His Pro  
165 170 175

Glu Ile Ser Val Leu Ala Val Phe Leu Gly Pro Asn Asp Pro Trp Asp  
180 185 190

Phe Pro Val Gly Lys Leu Tyr Leu Lys Phe Ala Ser Asp Glu Trp Ala  
195 200 205

Gln Glu Tyr Leu Lys Arg Val Asp Arg Ile Leu Glu Ala Ala His Thr  
210 215 220

His Arg Val Gln Val Val Trp Leu Gly Ile Pro Tyr Met Lys Lys Ala  
225 230 235 240

Lys Leu Asp Gly Gln Met Arg Tyr Leu Asp Lys Leu Leu Ser Glu His  
245 250 255

Leu Lys Gly Lys Ile Ile Leu Ile Pro Thr Thr His Thr Leu Ser Gly  
260 265 270

Gly Lys Asp Arg Tyr Thr Asp Ser Val Asn Val Asn Gly Lys Pro Val  
275 280 285

Arg Tyr Arg Ser Lys Asp Gly Ile His Phe Thr Ala Glu Gly Gln Lys

290

295

300

Leu Leu Ala Ala Lys Ile Met Glu Lys Ile Val Phe Glu Pro Ser Thr  
 305 310 315 320

Gln Pro Ser Ser Thr Gln Pro  
 325

&lt;210&gt; 1245

&lt;211&gt; 984

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1245

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 gaaccgcttg ccgcctacgg atggtggcgg agcgggtgcgg cattgcaaga aaacgcctac 180  
 gccctttcag acggcatcaa agccttctctg tccggcgaaa cgcgcgcgac ggctcaagac 240  
 ggcgggttcgg gagatatgcc gtctgaagcc gccgcacccg aaaccgcccc tcaaactggc 300  
 gaaacagaat ggaaacaaaa caccgaagcc gccgccgtcc gaacagggga caaagtcttt 360  
 ttcgccggcg actcgtgat gcagggcggt gcacccttcg tgcaaaaaag cctgaaacag 420  
 caatacggca tcgaatccgt caacctcagc aaacaaagca cggggctgtc ctaccctca 480  
 ttcttcgact ggccgaaaac gattgaagaa accctgaaaa aacatcccga aatcagcgtg 540  
 ctgcgcgtct tctcgtgtcc gaacgacccg tgggatttcc ccgttggcaa acgctacctc 600  
 aaattcgctt ccgacgaatg ggcgcaagaa tacctgaaac gcgtcgaccg catccttgaa 660

gccgcacaca cgcactacgt ccaagtcgtc tggctcggca tccctacat gaaaaaagcc 720  
 aagctcgacg gacagatgcg ctacctagac aaactgcttt cggaatattt gaaaggcaaa 780  
 atcatcctga ttcccaccgc gcacaccctg agcggcggga aagaccgcta caccgactcc 840  
 gtcaacgtca acggcaaaac cgtccgctac cgcagcaagg acggcataca ctttaccgcc 900  
 gaaggacaaa aactgctggc ggcaaaaata atggaaaaaa tcgtttttga accaagtacg 960  
 caaccatcaa gtacacagcc atga 984

&lt;210&gt; 1246

&lt;211&gt; 327

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1246

Met Lys Asn Phe Leu Ser Leu Phe Ala Ser Ile Leu Met Ser Ala Leu  
 1 5 10 15

Ile Ala Val Trp Phe Ser Gln Asn Pro Ile Asn Ala Tyr Trp Gln Gln  
 20 25 30

Thr Tyr His Arg Asn Ser Pro Leu Glu Pro Leu Ala Ala Tyr Gly Trp  
 35 40 45

Trp Arg Ser Gly Ala Ala Leu Gln Glu Asn Ala Tyr Ala Leu Ser Asp  
 50 55 60

Gly Ile Lys Ala Phe Leu Ser Gly Glu Thr Pro Pro Thr Ala Gln Asp  
 65 70 75 80

Gly Gly Ser Ala Asp Met Pro Ser Glu Ala Ala Ala Pro Glu Thr Ala  
                             85                            90                            95  
 Pro Gln Thr Gly Glu Thr Glu Trp Lys Gln Asn Thr Glu Ala Ala Ala  
                             100                            105                            110  
 Val Arg Thr Gly Asp Lys Val Phe Phe Ala Gly Asp Ser Leu Met Gln  
                             115                            120                            125  
 Gly Val Ala Pro Phe Val Gln Lys Ser Leu Lys Gln Gln Tyr Gly Ile  
                             130                            135                            140  
 Glu Ser Val Asn Leu Ser Lys Gln Ser Thr Gly Leu Ser Tyr Pro Ser  
 145                            150                            155                            160  
 Phe Phe Asp Trp Pro Lys Thr Ile Glu Glu Thr Leu Lys Lys His Pro  
                             165                            170                            175  
 Glu Ile Ser Val Leu Ala Val Phe Leu Gly Pro Asn Asp Pro Trp Asp  
                             180                            185                            190  
 Phe Pro Val Gly Lys Arg Tyr Leu Lys Phe Ala Ser Asp Glu Trp Ala  
                             195                            200                            205  
 Gln Glu Tyr Leu Lys Arg Val Asp Arg Ile Leu Glu Ala Ala His Thr  
                             210                            215                            220  
 His Tyr Val Gln Val Val Trp Leu Gly Ile Pro Tyr Met Lys Lys Ala  
 225                            230                            235                            240  
 Lys Leu Asp Gly Gln Met Arg Tyr Leu Asp Lys Leu Leu Ser Glu Tyr  
                             245                            250                            255  
 Leu Lys Gly Lys Ile Ile Leu Ile Pro Thr Ala His Thr Leu Ser Gly  
                             260                            265                            270  
 Gly Lys Asp Arg Tyr Thr Asp Ser Val Asn Val Asn Gly Lys Pro Val  
                             275                            280                            285  
 Arg Tyr Arg Ser Lys Asp Gly Ile His Phe Thr Ala Glu Gly Gln Lys  
                             290                            295                            300  
 Leu Leu Ala Ala Lys Ile Met Glu Lys Ile Val Phe Glu Pro Ser Thr  
 305                            310                            315                            320  
 Gln Pro Ser Ser Thr Gln Pro  
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<210> 1247

<211> 1194

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1247

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gatacaaacg ggctgctgac cgactacggc aacgcgcgcg cctcgcttg gatgaaaaaa 180  
ctccgatccg tcgcacaagg cagcggcgag gccttccgca tcttgcaaat cggcgactcg 240  
cataccgccg gcgacttctt taccgacgcc ctgcgcaaac gcctgcaaaa aacatggggc 300  
gacggcgcga taggctgggt ttaccccgcc aacgtcaaag ggcagcgcat ggcggcgcgc 360  
cgtcacagcg gcaactggca aagcttcacc agcaggaaca ataccggaga tttcccgctc 420  
ggcggcatcc tcgccc aaac cggcagcggc ggcggcatga cctgaccgc gtctgacggc 480  
aaaaccggca aacagcgcgt ttccctgttt gccaaaccgc tgctcgccga acaaaccctg 540  
accgtcaacg gcaacaccgt ctccgccaac ggcggcgcgt ggcaggtact ggatacgggc 600  
gcggcactgc ccctggccat acagaccgaa atgccgtggg acatcggtt catcaacatc 660  
gaaaatcccg cggcgggcat taccgtttcc gcgatgggca tcaacggcgc acaattgacc 720  
cagtggtcga aatggcgtgc cgaccgtatg aacgacctg cccaaaccgg cgccgatttg 780  
gttatccttt cctacggcac caacgaagcc ttcaacaaca acatcgacat tgccgatacc 840  
gaacaaaaat ggctggatac cgtccgcca atccgcgaca gcctgcccgc cgccggcatc 900  
ctcatcatcg gcgcgcccga atccctgaaa aacacgctcg gcgtatgcgg cagcgcccc 960  
gtcctcctga ccgaagtcca acagatgcag cggcgcgtcg cccgtcaggg gcagacgatg 1020  
ttttggtctt ggcaaaacgc aatgggcggc atatgcagca tgaaaaactg gctcaaccaa 1080  
ggatggggccg ccaaagacgg cgtacacttc tccgcccgaag gctaccggcg cgcggcggaa 1140  
atgcttgccg acagcctcga agaactcgtc cgcgcgcgcg caatcaggca ataa 1194

<210> 1248

<211> 397

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1248

Met Asn Pro Lys His Phe Ile Ala Phe Ser Ala Leu Phe Ala Ala Thr  
1 5 10 15

Gln Ala Glu Ala Leu Pro Val Ala Ser Val Ser Pro Asp Thr Val Thr  
20 25 30

Val Ser Pro Ser Ala Pro Tyr Thr Asp Thr Asn Gly Leu Leu Thr Asp  
35 40 45

Tyr Gly Asn Ala Ala Ala Ser Pro Trp Met Lys Lys Leu Arg Ser Val  
50 55 60

Ala Gln Gly Ser Gly Glu Ala Phe Arg Ile Leu Gln Ile Gly Asp Ser  
65 70 75 80

His Thr Ala Gly Asp Phe Phe Thr Asp Ala Leu Arg Lys Arg Leu Gln  
85 90 95

Lys Thr Trp Gly Asp Gly Gly Ile Gly Trp Val Tyr Pro Ala Asn Val  
100 105 110

Lys Gly Gln Arg Met Ala Ala Val Arg His Ser Gly Asn Trp Gln Ser  
115 120 125

Phe Thr Ser Arg Asn Asn Thr Gly Asp Phe Pro Leu Gly Gly Ile Leu  
130 135 140

Ala Gln Thr Gly Ser Gly Gly Gly Met Thr Leu Thr Ala Ser Asp Gly  
145 150 155 160

Lys Thr Gly Lys Gln Arg Val Ser Leu Phe Ala Lys Pro Leu Leu Ala





cggcacaacg gtaactggca aagcctcacc agcaggaaca acaccggaga cttcccgtc 420  
 ggcggcatcc tcgccacac cggcagcggc ggcagcatga ccctgaccgc atcggacggc 480  
 atagcaagca agcagcgcgt ttccctgttt gccaaacccc tgcttgccga acaaaccctg 540  
 accgtcaacg gcaacaccgt ctccgccaac ggcggcggct ggcaggtact ggatacgggc 600  
 gcggcactgc ccctgaccat acacaccgaa atgccgtggg acatcggctt catcaacatc 660  
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 cagtggtcga aatggcgtgc cgaccgtatg aacgacctcg cccaaaccgg cgccgatttg 780  
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<210> 1250

<211> 397

<212> PRT

<213> Neisseria meningitidis

<400> 1250

Met	Asn	Pro	Lys	His	Leu	Ile	Ala	Phe	Ser	Ala	Leu	Phe	Ala	Ala	Thr
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Gln	Ala	Glu	Ala	Leu	Pro	Val	Ala	Ser	Val	Ser	Leu	Asp	Thr	Val	Thr
			20					25					30		
Val	Ser	Pro	Ser	Ala	Pro	Tyr	Thr	Asp	Thr	Asn	Gly	Leu	Leu	Thr	Asp
		35					40					45			
Tyr	Gly	Asn	Ala	Ser	Ala	Ser	Pro	Trp	Met	Lys	Lys	Leu	Gln	Ser	Val
	50					55					60				
Ala	Gln	Gly	Ser	Gly	Glu	Thr	Phe	Arg	Ile	Leu	Gln	Ile	Gly	Asp	Ser
65					70					75				80	
His	Thr	Ala	Gly	Asp	Phe	Phe	Thr	Asp	Ser	Leu	Arg	Lys	Arg	Leu	Gln
			85						90					95	
Lys	Thr	Trp	Gly	Asp	Gly	Gly	Ile	Gly	Trp	Val	Tyr	Pro	Ala	Asn	Val
			100					105					110		
Lys	Gly	Gln	Arg	Met	Ala	Ala	Val	Arg	His	Asn	Gly	Asn	Trp	Gln	Ser
	115						120					125			
Leu	Thr	Ser	Arg	Asn	Asn	Thr	Gly	Asp	Phe	Pro	Leu	Gly	Gly	Ile	Leu
130						135					140				
Ala	His	Thr	Gly	Ser	Gly	Gly	Ser	Met	Thr	Leu	Thr	Ala	Ser	Asp	Gly
145					150					155				160	
Ile	Ala	Ser	Lys	Gln	Arg	Val	Ser	Leu	Phe	Ala	Lys	Pro	Leu	Leu	Ala
			165						170					175	
Glu	Gln	Thr	Leu	Thr	Val	Asn	Gly	Asn	Thr	Val	Ser	Ala	Asn	Gly	Gly



```

atagcaagca agcagcgcgt ttccctgttt gccaaacccc tgcttgccga acaaaccctg 540
accgtcaacg gcaacaccgt ctccgccaac ggccggcggt ggcagggtact ggatacgggc 600
gcggcactgc ccctgacat acacaccgaa atgccgtggg acatcggtt catcaacatc 660
gaaaatcccg ccggcggcat taccgtttcc gcgatgggca tcaacggcgc acaattaacc 720
cagtgggtcg aatggcgtgc cgaccgtatg aacgaccttg cccaaaccgg cgccgatcta 780
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gaacagaaat ggctggatac cgtccgccaa atccgcgaca gcctacctgc cgccggcatc 900
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ggatgggccg ccaaagacgg cgtacacttt tccgccaaag gctaccaacg gtcggcgga 1140
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<210> 1252

<211> 397

<212> PRT

<213> Neisseria meningitidis

<400> 1252

```

Met Asn Pro Lys His Leu Ile Ala Phe Ser Ala Leu Phe Ala Ala Thr
  1              5              10              15

```

```

Gln Ala Glu Ala Leu Pro Val Ala Ser Val Ser Leu Asp Thr Val Thr
      20              25              30

```

```

Val Ser Pro Ser Ala Pro Tyr Thr Asp Thr Asn Gly Leu Leu Thr Asp
      35              40              45

```

```

Tyr Gly Asn Ala Ser Ala Ser Pro Trp Met Lys Lys Leu Gln Ser Val
      50              55              60

```

```

Ala Gln Gly Ser Gly Glu Thr Phe Arg Ile Leu Gln Ile Gly Asp Ser
      65              70              75              80

```

```

His Thr Ala Gly Asp Phe Phe Thr Asp Ser Leu Arg Lys Arg Leu Gln
      85              90              95

```

```

Lys Thr Trp Gly Asp Gly Gly Ile Gly Trp Val Tyr Pro Ala Asn Val
     100              105              110

```

```

Lys Gly Gln Arg Met Ala Ala Val Arg His Asn Gly Asn Trp Gln Ser
     115              120              125

```

```

Leu Thr Ser Arg Asn Asn Thr Gly Asp Phe Pro Leu Gly Gly Ile Leu
     130              135              140

```

```

Ala His Thr Gly Ser Gly Gly Ser Met Thr Leu Thr Ala Ser Asp Gly
     145              150              155              160

```

```

Ile Ala Ser Lys Gln Arg Val Ser Leu Phe Ala Lys Pro Leu Leu Ala
     165              170              175

```

```

Glu Gln Thr Leu Thr Val Asn Gly Asn Thr Val Ser Ala Asn Gly Gly
     180              185              190

```

Gly Trp Gln Val Leu Asp Thr Gly Ala Ala Leu Pro Leu Thr Ile His  
 195 200 205  
 Thr Glu Met Pro Trp Asp Ile Gly Phe Ile Asn Ile Glu Asn Pro Ala  
 210 215 220  
 Gly Gly Ile Thr Val Ser Ala Met Gly Ile Asn Gly Ala Gln Leu Thr  
 225 230 235 240  
 Gln Trp Ser Lys Trp Arg Ala Asp Arg Met Asn Asp Leu Ala Gln Thr  
 245 250 255  
 Gly Ala Asp Leu Val Ile Leu Ala Tyr Gly Thr Asn Glu Ala Phe Gly  
 260 265 270  
 Asp Asn Ile Asp Ile Ala Asp Thr Glu Gln Lys Trp Leu Asp Thr Val  
 275 280 285  
 Arg Gln Ile Arg Asp Ser Leu Pro Ala Ala Gly Ile Leu Ile Ile Gly  
 290 295 300  
 Ala Pro Glu Ser Leu Lys Asn Thr Leu Gly Val Cys Gly Thr Arg Pro  
 305 310 315 320  
 Val Arg Leu Thr Glu Val Gln Gln Met Gln Arg Arg Ile Ala Arg Gln  
 325 330 335  
 Gly Gln Thr Met Phe Trp Ser Trp Gln Asn Ala Met Gly Gly Val Cys  
 340 345 350  
 Ser Met Lys Asn Trp Leu Asn His Gly Trp Ala Ala Lys Asp Gly Val  
 355 360 365  
 His Phe Ser Ala Lys Gly Tyr Gln Arg Ser Ala Glu Met Leu Ala Asp  
 370 375 380  
 Ser Leu Glu Glu Leu Val Arg Ser Ala Ala Ile Arg Gln  
 385 390 395

<210> 1253

<211> 1602

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1253

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 ttcaccggtt tcgcgcggtt gggaacggtg ttgggtttctt tattgggcgt ggggattgcg 360  
 gaaaaatcgg gcttgatttc cgcattaatg cgcttattgc tcacaaaatc cccacgcaa 420  
 ctactactt ttatggttgt ttttacaggg attttatcca atacggcttc tgaattgggc 480  
 tatgtcgtcc taatcccttt gtccgcgctc atctttcatt cgctcggccg ccatccgctt 540  
 gccggttttg ctgcggcttt cgcggcggtt tcgggcgggt attcggccaa tctgtttcta 600  
 ggcacaatcg atccgctctt ggcaggcatc acccaacagg cggcgcaaat catccatccc 660

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tcagatttgt cacaagaaga aaaagacatt cggcattcca atgaaatcac gcctttggaa 840
tataaaggat taatttgggc aggcgtggtg tttgtgcct tatccgccct attggccttg 900
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tatggccgga taaccggaag tttgcgcggc gaacgggaag tcgttaatgc gatggccgaa 1080
tcgatgagta ctttgggact ttatttggtc atcatctttt ttgccgcaca gtttgtcgca 1140
ttttttaatt ggacgaatat tgggcaatat attgccgta aaggggcggt gttcttaaaa 1200
gaagtcggct tgggcggcag tgtgttgttt atcggtttta ttttaatttg tgcttttatc 1260
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gctttcttct taattgcatg gatcgcttta ttctgcattt gggattttgt tttgggtctg 1560
cccgtcggtc ccggcacacc cacattctat ccggtgcctt aa 1602

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<210> 1254

<211> 533

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1254

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Met His Ser Ile Tyr Phe Phe Lys Glu Lys Gln Met Ser Gln Thr Asp
  1             5             10             15

Ala Arg Arg Ser Gly Arg Phe Leu Arg Thr Val Glu Trp Leu Gly Asn
      20             25             30

Met Leu Pro His Pro Val Thr Leu Phe Ile Ile Phe Ile Val Leu Leu
      35             40             45

Leu Ile Ala Ser Ala Val Gly Ala Tyr Phe Gly Leu Ser Val Pro Asp
      50             55             60

Pro Arg Pro Val Gly Ala Lys Gly Arg Ala Asp Asp Gly Leu Ile His
      65             70             75             80

Val Val Ser Leu Leu Asp Ala Asp Gly Leu Ile Lys Ile Leu Thr His
      85             90             95

Thr Val Lys Asn Phe Thr Gly Phe Ala Pro Leu Gly Thr Val Leu Val
      100            105            110

Ser Leu Leu Gly Val Gly Ile Ala Glu Lys Ser Gly Leu Ile Ser Ala
      115            120            125

Leu Met Arg Leu Leu Leu Thr Lys Ser Pro Arg Lys Leu Thr Thr Phe
      130            135            140

Met Val Val Phe Thr Gly Ile Leu Ser Asn Thr Ala Ser Glu Leu Gly
      145            150            155            160

Tyr Val Val Leu Ile Pro Leu Ser Ala Val Ile Phe His Ser Leu Gly
      165            170            175

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Arg His Pro Leu Ala Gly Leu Ala Ala Ala Phe Ala Gly Val Ser Gly  
 180 185 190  
 Gly Tyr Ser Ala Asn Leu Phe Leu Gly Thr Ile Asp Pro Leu Leu Ala  
 195 200 205  
 Gly Ile Thr Gln Gln Ala Ala Gln Ile Ile His Pro Asp Tyr Val Val  
 210 215 220  
 Gly Pro Glu Ala Asn Trp Phe Phe Met Ala Ala Ser Thr Phe Val Ile  
 225 230 235 240  
 Ala Leu Ile Gly Tyr Phe Val Thr Glu Lys Ile Val Glu Pro Gln Leu  
 245 250 255  
 Gly Pro Tyr Gln Ser Asp Leu Ser Gln Glu Glu Lys Asp Ile Arg His  
 260 265 270  
 Ser Asn Glu Ile Thr Pro Leu Glu Tyr Lys Gly Leu Ile Trp Ala Gly  
 275 280 285  
 Val Val Phe Val Ala Leu Ser Ala Leu Leu Ala Trp Ser Ile Val Pro  
 290 295 300  
 Ala Asp Gly Ile Leu Arg His Pro Glu Thr Gly Leu Val Ala Gly Ser  
 305 310 315 320  
 Pro Phe Leu Lys Ser Ile Val Val Phe Ile Phe Leu Leu Phe Ala Leu  
 325 330 335  
 Pro Gly Ile Val Tyr Gly Arg Ile Thr Arg Ser Leu Arg Gly Glu Arg  
 340 345 350  
 Glu Val Val Asn Ala Met Ala Glu Ser Met Ser Thr Leu Gly Leu Tyr  
 355 360 365  
 Leu Val Ile Ile Phe Phe Ala Ala Gln Phe Val Ala Phe Phe Asn Trp  
 370 375 380  
 Thr Asn Ile Gly Gln Tyr Ile Ala Val Lys Gly Ala Val Phe Leu Lys  
 385 390 395 400  
 Glu Val Gly Leu Gly Gly Ser Val Leu Phe Ile Gly Phe Ile Leu Ile  
 405 410 415  
 Cys Ala Phe Ile Asn Leu Met Ile Gly Ser Ala Ser Ala Gln Trp Ala  
 420 425 430  
 Val Thr Ala Pro Ile Phe Val Pro Met Leu Met Leu Ala Gly Tyr Ala  
 435 440 445  
 Pro Gln Val Ile Gln Ala Ala Tyr Arg Ile Gly Asp Ser Val Thr Asn  
 450 455 460  
 Ile Ile Thr Pro Met Met Ser Tyr Phe Gly Leu Ile Met Ala Thr Val  
 465 470 475 480

Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr Leu Ile Ser Met Met  
 485 490 495

Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp Ile Ala Leu Phe Cys  
 500 505 510

Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly Pro Gly Thr Pro Thr  
 515 520 525

Phe Tyr Pro Val Pro  
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<210> 1255  
 <211> 1581  
 <212> DNA  
 <213> Neisseria meningitidis

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 ttcaccgggt tcgcgcgctt gggaacgggt ttggtttctt tattgggctt ggggattgct 360  
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 ctactacttt ttatggttgt ttttacaggg attttatcta ataccgcttc tgaattgggc 480  
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 gccgtctcgg ctgcggcttt cgccggcggt tcgggcgggt attcggccaa tctgttctta 600  
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 attttgcgtc atcctgaaac aggattggtt tccggttcgc cgtttttaaa atcgattgtt 960  
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 ccgatgatga gttatttcg gctgattatg gcgacgggtg tcaaatataa aaaagatgcg 1440  
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<210> 1256  
 <211> 526  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1256  
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 Pro Arg Pro Val Gly Ala Lys Gly Arg Ala Asp Asp Gly Leu Ile Tyr  
 65 70 75 80  
 Ile Val Ser Leu Leu Asn Ala Asp Gly Phe Ile Lys Ile Leu Thr His  
 85 90 95  
 Thr Val Lys Asn Phe Thr Gly Phe Ala Pro Leu Gly Thr Val Leu Val  
 100 105 110  
 Ser Leu Leu Gly Val Gly Ile Ala Glu Lys Ser Gly Leu Ile Ser Ala  
 115 120 125  
 Leu Met Arg Leu Leu Leu Thr Lys Ser Pro Arg Lys Leu Thr Thr Phe  
 130 135 140  
 Met Val Val Phe Thr Gly Ile Leu Ser Asn Thr Ala Ser Glu Leu Gly  
 145 150 155 160  
 Tyr Val Val Leu Ile Pro Leu Ser Ala Ile Ile Phe His Ser Leu Gly  
 165 170 175  
 Arg His Pro Leu Ala Gly Leu Ala Ala Ala Phe Ala Gly Val Ser Gly  
 180 185 190  
 Gly Tyr Ser Ala Asn Leu Phe Leu Ser Thr Ile Asp Pro Leu Leu Ala  
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 Cys Ile Thr His Gln Ala Ala Val Val Gly Pro Glu Ala Asn Trp Phe  
 210 215 220  
 Phe Met Val Ala Ser Thr Phe Val Ile Ala Leu Ile Gly Tyr Phe Val  
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 Thr Glu Lys Ile Val Glu Pro Gln Leu Gly Pro Tyr Gln Ser Asp Leu  
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 Ser Gln Glu Glu Lys Asp Ile Arg His Ser Asn Glu Ile Thr Pro Leu  
 260 265 270  
 Glu Tyr Lys Gly Leu Ile Trp Ala Gly Val Val Phe Val Ala Leu Ser  
 275 280 285  
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 Pro Glu Thr Gly Leu Val Ser Gly Ser Pro Phe Leu Lys Ser Ile Val  
 305 310 315 320

Val Phe Ile Phe Leu Leu Phe Ala Leu Xaa Gly Xaa Val Tyr Gly Arg  
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 Ala Gln Phe Val Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln Tyr Ile  
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 Ala Val Lys Gly Ala Thr Phe Leu Lys Glu Val Gly Leu Gly Gly Ser  
 385 390 395 400  
 Val Leu Phe Ile Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn Leu Met  
 405 410 415  
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 420 425 430  
 Pro Met Leu Met Leu Ala Gly Tyr Ala Pro Glu Val Ile Gln Ala Ala  
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 Tyr Arg Ile Gly Asp Ser Val Thr Asn Ile Ile Thr Pro Met Met Ser  
 450 455 460  
 Tyr Phe Gly Leu Ile Met Ala Thr Val Ile Lys Tyr Lys Lys Asp Ala  
 465 470 475 480  
 Gly Val Gly Thr Leu Ile Ser Met Met Leu Pro Tyr Ser Ala Phe Phe  
 485 490 495  
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<210> 1257

<211> 1602

<212> DNA

<213> Neisseria meningitidis

<400> 1257

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 ctactactt ttatggttgt ttttacaggg attttatcta ataccgcttc tgaattgggc 480  
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gctttcttct tgattgcgtg gattgcctta ttctgcattt gggatattgt tttgggcctg 1560  
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<210> 1258

<211> 533

<212> PRT

<213> Neisseria meningitidis

<400> 1258

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			20					25					30		
Met	Leu	Pro	His	Pro	Val	Thr	Leu	Phe	Ile	Ile	Phe	Ile	Val	Leu	Leu
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Leu	Ile	Ala	Ser	Ala	Ala	Gly	Ala	Tyr	Phe	Gly	Leu	Ser	Val	Pro	Asp
	50					55					60				
Pro	Arg	Pro	Val	Gly	Ala	Lys	Gly	Arg	Ala	Asp	Asp	Gly	Leu	Ile	His
	65				70					75				80	
Val	Val	Ser	Leu	Leu	Asp	Ala	Asp	Gly	Leu	Ile	Lys	Ile	Leu	Thr	His
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Thr	Val	Lys	Asn	Phe	Thr	Gly	Phe	Ala	Pro	Leu	Gly	Thr	Val	Leu	Val
			100					105					110		
Ser	Leu	Leu	Gly	Val	Gly	Ile	Ala	Glu	Lys	Ser	Gly	Leu	Ile	Ser	Ala
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Leu	Met	Arg	Leu	Leu	Leu	Thr	Lys	Ser	Pro	Arg	Lys	Leu	Thr	Thr	Phe
	130					135					140				
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165										170					175				
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			180					185					190						
Gly	Tyr	Ser	Ala	Asn	Leu	Phe	Leu	Gly	Thr	Ile	Asp	Pro	Leu	Leu	Ala				
		195					200					205							
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Gly	Pro	Glu	Ala	Asn	Trp	Phe	Phe	Met	Val	Ala	Ser	Thr	Phe	Val	Ile				
225					230					235					240				
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			245						250					255					
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Ser	Asn	Glu	Ile	Thr	Pro	Leu	Glu	Tyr	Lys	Gly	Leu	Ile	Trp	Ala	Gly				
		275					280					285							
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	290					295					300								
Ala	Asp	Gly	Ile	Leu	Arg	His	Pro	Glu	Thr	Gly	Leu	Val	Ser	Gly	Ser				
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Pro	Phe	Leu	Lys	Ser	Ile	Val	Val	Phe	Ile	Phe	Leu	Leu	Phe	Ala	Leu				
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Pro	Gly	Ile	Val	Tyr	Gly	Arg	Val	Thr	Arg	Ser	Leu	Arg	Gly	Glu	Gln				
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Glu	Val	Val	Asn	Ala	Met	Ala	Glu	Ser	Met	Ser	Thr	Leu	Gly	Leu	Tyr				
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Leu	Val	Ile	Ile	Phe	Phe	Ala	Ala	Gln	Phe	Val	Ala	Phe	Phe	Asn	Trp				
	370					375					380								
Thr	Asn	Ile	Gly	Gln	Tyr	Ile	Ala	Val	Lys	Gly	Ala	Thr	Phe	Leu	Lys				
385					390					395					400				
Glu	Val	Gly	Leu	Gly	Gly	Ser	Val	Leu	Phe	Ile	Gly	Phe	Ile	Leu	Ile				
			405						410					415					
Cys	Ala	Phe	Ile	Asn	Leu	Met	Ile	Gly	Ser	Ala	Ser	Ala	Gln	Trp	Ala				
			420					425					430						
Val	Thr	Ala	Pro	Ile	Phe	Val	Pro	Met	Leu	Met	Leu	Ala	Gly	Tyr	Ala				
		435					440					445							
Pro	Glu	Val	Ile	Gln	Ala	Ala	Tyr	Arg	Ile	Gly	Asp	Ser	Val	Thr	Asn				
	450					455					460								
Ile	Ile	Thr	Pro	Met	Met	Ser	Tyr	Phe	Gly	Leu	Ile	Met	Ala	Thr	Val				

465                      470                      475                      480  
 Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr Leu Ile Ser Met Met  
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 Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp Ile Ala Leu Phe Cys  
                                  500                      505                      510  
 Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly Pro Gly Ala Pro Thr  
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 Phe Tyr Pro Ala Pro  
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<210> 1259  
 <211> 822  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

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<210> 1260  
 <211> 273  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 1260  
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                                  20                      25                      30  
 Phe Gly Asn Leu Ile Gly Phe His Ser Asn His Lys Val Phe Glu Ile  
                                  35                      40                      45  
 Ala Ile Gln Leu Gly Ala Val Leu Ala Val Val Phe Glu Tyr Arg Gln  
                                  50                      55                      60  
 Arg Phe Ser Asn Val Leu His Gly Val Gly Lys Asp Arg Lys Ala Asn

65	70	75	80
Arg Phe Val Leu Asn Leu Ala Ile Ala Phe Ile Pro Ala Ala Val Met	85	90	95
Gly Leu Leu Phe Asp Lys Gln Ile Lys Glu Tyr Leu Phe Asn Pro Leu	100	105	110
Ser Val Ala Val Met Leu Val Leu Gly Gly Phe Phe Ile Leu Trp Val	115	120	125
Glu Lys Arg Gln Ser Arg Ala Glu Pro Lys Ile Ala Asp Val Asp Ala	130	135	140
Leu Arg Pro Ile Asp Ala Leu Met Ile Gly Val Ala Gln Val Phe Ala	145	150	155
Leu Val Pro Gly Thr Ser Arg Ser Gly Ser Thr Val Met Gly Gly Met	165	170	175
Leu Trp Gly Ile Glu Arg Lys Thr Ala Thr Glu Phe Ser Phe Phe Leu	180	185	190
Ala Val Pro Met Met Val Ala Ala Thr Ala Tyr Asp Val Leu Lys His	195	200	205
Tyr Arg Phe Phe Thr Leu His Asp Val Gly Leu Ile Leu Ile Gly Phe	210	215	220
Ile Ala Ala Phe Val Ser Gly Leu Val Ala Val Lys Ala Leu Leu Lys	225	230	235
Phe Val Ser Lys Lys Asn Tyr Ile Pro Phe Ala Tyr Tyr Arg Ile Val	245	250	255
Phe Gly Ile Val Ile Ile Ile Leu Trp Leu Ser Gly Trp Ile Ser Trp	260	265	270

Glu

<210> 1261

<211> 734

<212> DNA

<213> Neisseria meningitidis

<400> 1261

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gaacggaaaa ctgcgacaga attctcggtt ttcttggtg tgccgatgat gggtgccgca 600  
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<210> 1262

<211> 244

<212> PRT

<213> Neisseria meningitidis

<400> 1262

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Phe Gly Asn Leu Ile Gly Phe His Ser Asn His Lys Val Phe Glu Ile  
35 40 45

Ala Ile Gln Leu Gly Ala Val Leu Ala Val Val Phe Glu Tyr Arg Gln  
50 55 60

Arg Phe Ser Asn Val Leu His Gly Leu Gly Lys Asp Arg Lys Ala Asn  
65 70 75 80

Arg Phe Val Leu Asn Leu Ala Ile Ala Phe Ile Pro Ala Ala Val Met  
85 90 95

Gly Leu Leu Phe Gly Xaa Gln Ile Lys Glu Xaa Leu Phe Asn Pro Leu  
100 105 110

Ser Val Ala Val Met Leu Val Leu Xaa Gly Phe Xaa Ile Leu Trp Val  
115 120 125

Glu Lys Arg Gln Ser Arg Ala Glu Pro Lys Ile Ala Asp Val Asp Ala  
130 135 140

Leu Arg Pro Ile Asp Ala Leu Met Ile Gly Val Ala Gln Val Phe Ala  
145 150 155 160

Leu Val Pro Gly Thr Ser Arg Ser Gly Ser Thr Ile Met Gly Gly Met  
165 170 175

Leu Trp Gly Ile Glu Arg Lys Thr Ala Thr Glu Phe Ser Phe Phe Leu  
180 185 190

Ala Val Pro Met Met Val Ala Ala Thr Ala Tyr Asp Val Leu Lys His  
195 200 205

Tyr Arg Phe Phe Thr Leu His Asp Val Gly Leu Ile Leu Ile Gly Phe  
210 215 220

Ile Ala Ala Phe Val Ser Gly Leu Val Ala Val Lys Ala Leu Leu Arg  
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Phe Val Ser Gly

<210> 1263

<211> 822

<212> DNA

<213> Neisseria meningitidis

<400> 1263

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gaataccggc agcgtttcag caatgtgttg catggcgtgg gaaaagaccg gaaagccaac 240  
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<210> 1264

<211> 273

<212> PRT

<213> Neisseria meningitidis

<400> 1264

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Phe Gly Asn Leu Ile Asp Phe His Ser Asn His Lys Val Phe Glu Ile  
35 40 45  
Thr Ile Gln Leu Gly Ala Val Leu Ala Val Val Phe Glu Tyr Arg Gln  
50 55 60  
Arg Phe Ser Asn Val Leu His Gly Val Gly Lys Asp Arg Lys Ala Asn  
65 70 75 80  
Arg Phe Val Leu Asn Leu Ala Ile Ala Phe Ile Pro Ala Ala Val Met  
85 90 95  
Gly Leu Leu Phe Gly Lys Gln Ile Lys Glu Tyr Leu Phe Asn Pro Leu  
100 105 110  
Ser Val Ala Val Met Leu Val Leu Gly Gly Phe Phe Ile Leu Trp Val  
115 120 125



Glu Lys Arg Gln Ser Arg Ala Glu Pro Lys Ile Val Asp Val Asp Ala  
 130 135 140  
 Leu Arg Pro Ile Asp Ala Leu Met Ile Gly Val Ala Gln Val Phe Ala  
 145 150 155 160  
 Leu Val Pro Gly Thr Ser Arg Ser Gly Ser Thr Ile Met Gly Gly Met  
 165 170 175  
 Leu Trp Gly Ile Glu Arg Lys Thr Ala Thr Glu Phe Ser Phe Phe Leu  
 180 185 190  
 Ala Val Pro Met Met Val Ala Ala Thr Ala Tyr Asp Val Leu Lys His  
 195 200 205  
 Tyr Arg Phe Phe Thr Leu His Asp Val Gly Leu Ile Leu Ile Gly Phe  
 210 215 220  
 Val Ala Ala Phe Val Ser Gly Leu Val Ala Val Lys Ala Leu Leu Arg  
 225 230 235 240  
 Phe Val Ser Lys Lys Asn Tyr Ile Pro Phe Ala Tyr Tyr Arg Ile Val  
 245 250 255  
 Phe Gly Ile Ala Ile Ile Ile Leu Trp Leu Ser Gly Trp Ile Ser Trp  
 260 265 270

Glu

<210> 1265  
 <211> 804  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1265  
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 atactggcaa cggtcattat tgccggtatt ttgctttatc tgaaccaggg cggtcaaaat 120  
 gcgttcaaaa tcccggctcc gtcgaagcag cctgcagaaa cggaatcct gaaactgaaa 180  
 aaccagccta aggaagacat ccaacctgaa ccggccgata aaaacgcctt gtccgaaccg 240  
 gatgttgaga aagaggcaga gcagtcggat gcggaaaaag ctgccgacaa gcagcccggt 300  
 gccgacaaaag ccgacgaggt tgaagaaaag gcgggcgagc cggaacggga agagccggac 360  
 ggacaggcag tgcgcaagaa agcactgact gaagagcgtg aacaaaccgt cagggaaaaa 420  
 gcgcagaaga aagatgccga aacgggttaa aaaaaagcgg taaaaccgtc taaagaaaca 480  
 gagaaaaaag cttcaaaaaga agagaaaaag gcggcgaaag aaaaagttgc acccaaaccg 540  
 accccggaac aaatcctcaa cagccgcagt atcgaaaaag cgcgtagtgc cgctgccaaa 600  
 gaagtgcaga aaatgaaaaa ctttgggcaa ggcggaagcc aacgcattat ctgcaaatgg 660  
 gcgcgtatgc cgaaccccgag agcgcggaag ggacgcgtgc caaactggca atcttgggca 720  
 tatcttccga agtggtcggc tatcaggcgg gacataaaac gctttaccgc gtgcaaagcg 780  
 gcaatatgtc cgcgatgag gtga 804

<210> 1266  
 <211> 267  
 <212> PRT

<213> Neisseria gonorrhoeae

<400> 1266

Met Phe Met Asn Lys Phe Ser Gln Ser Gly Lys Gly Leu Ser Gly Phe  
1 5 10 15

Phe Phe Gly Leu Ile Leu Ala Thr Val Ile Ile Ala Gly Ile Leu Leu  
20 25 30

Tyr Leu Asn Gln Gly Gly Gln Asn Ala Phe Lys Ile Pro Ala Pro Ser  
35 40 45

Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Leu Lys Asn Gln Pro Lys  
50 55 60

Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro  
65 70 75 80

Asp Val Ala Lys Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp  
85 90 95

Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Gly  
100 105 110

Glu Pro Glu Arg Glu Glu Pro Asp Gly Gln Ala Val Arg Lys Lys Ala  
115 120 125

Leu Thr Glu Glu Arg Glu Gln Thr Val Arg Glu Lys Ala Gln Lys Lys  
130 135 140

Asp Ala Glu Thr Val Lys Lys Lys Ala Val Lys Pro Ser Lys Glu Thr  
145 150 155 160

Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Ala Lys Glu Lys Val  
165 170 175

Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Arg Ser Ile Glu  
180 185 190

Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Asn Phe  
195 200 205

Gly Gln Gly Gly Ser Gln Arg Ile Ile Cys Lys Trp Ala Arg Met Pro  
210 215 220

Asn Pro Gly Ala Arg Lys Gly Ser Val Pro Asn Trp Gln Ser Trp Ala  
225 230 235 240

Tyr Leu Pro Lys Trp Ser Ala Ile Arg Arg Asp Ile Lys Arg Phe Thr  
245 250 255

Ala Cys Lys Ala Ala Ile Cys Pro Pro Met Arg  
260 265

<210> 1267

<211> 759

<212> DNA

<213> *Neisseria meningitidis*

<400> 1267

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aaccagagcg gtcaaaatgc gttcaaaatc ccggcttcgt cgaagcagcc tgcagaaacg 120
gaaatcctga aaccgmawaa ccagcytaag gaagacatcc aacctgawcc ggccgatcaa 180
aacgccttgt ccgaaccgga tgctgcgaca gaggcagagc agtcggatgc ggaaaawgct 240
gccgacaagc agcccgttgc cgataaagcc gacgagggtg aagaaaaggc gggcgagccg 300
gaacgggaag agcgggacgg acaggcagtg cgtaagaaag cgctgacgga agagcgtgaa 360
caaaccgtca gggaaaaagc gcagaagaaa gatgccgaaa cggttaaaaw acaagcggta 420
aaaccgtcta aagaaacaga gaaaaaagct tcaaaagaag agaaaaaggc ggcgaaggaa 480
aaagttgcac ccaaaccaac cccggaacaa atcctcaaca gcggcagcat cgaaaaagcg 540
cgcagtgccg ccgccaaga agtgcagaaa atgaaaacgc cgacaaggcg gaagcaacgc 600
attatctgca aatgggcgcg tatgccgacc gtcagagcgc ggaagggcag cgtgccaaac 660
tggcaatctt gggcatatct tccaaggtgg tcggttatca ggcgggacat aaaacgcttt 720
accgggtgca aagcggcaat atgtctgccg atgcggtga 759
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<210> 1268

<211> 252

<212> PRT

<213> *Neisseria meningitidis*

<400> 1268

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Gly Leu Phe Phe Gly Leu Ile Leu Ala Thr Val Ile Ile Ala Gly Ile
 1             5             10             15

Leu Phe Tyr Leu Asn Gln Ser Gly Gln Asn Ala Phe Lys Ile Pro Ala
 20             25             30

Ser Ser Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Pro Xaa Asn Gln
 35             40             45

Xaa Lys Glu Asp Ile Gln Pro Xaa Pro Ala Asp Gln Asn Ala Leu Ser
 50             55             60

Glu Pro Asp Ala Ala Thr Glu Ala Glu Gln Ser Asp Ala Glu Xaa Ala
 65             70             75             80

Ala Asp Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys
 85             90             95

Ala Gly Glu Pro Glu Arg Glu Glu Pro Asp Gly Gln Ala Val Arg Lys
100             105             110

Lys Ala Leu Thr Glu Glu Arg Glu Gln Thr Val Arg Glu Lys Ala Gln
115             120             125

Lys Lys Asp Ala Glu Thr Val Lys Xaa Gln Ala Val Lys Pro Ser Lys
130             135             140

Glu Thr Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Ala Lys Glu
145             150             155             160

Lys Val Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Gly Ser
165             170             175
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Ile Glu Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys  
180 185 190

Thr Pro Thr Arg Arg Lys Gln Arg Ile Ile Cys Lys Trp Ala Arg Met  
195 200 205

Pro Thr Val Arg Ala Arg Lys Gly Ser Val Pro Asn Trp Gln Ser Trp  
210 215 220

Ala Tyr Leu Pro Arg Trp Ser Val Ile Arg Arg Asp Ile Lys Arg Phe  
225 230 235 240

Thr Gly Cys Lys Ala Ala Ile Cys Leu Pro Met Arg  
245 250

<210> 1269

<211> 801

<212> DNA

<213> Neisseria meningitidis

<400> 1269

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atactggcga cggtcattat tgccggtatt ttgttttata tgaaccagag cgggtcaaaat 120  
gcgttcaaaa tcccgggtcc gtcgaagcag cctgcagaaa cggaaatcct gaaaccgaaa 180  
aaccagccta aggaagacat ccaacctgaa ccggccgata aaaacgcctt gtccgaaccg 240  
gatgctgcga aagaggcaga gcagtcggat gcggaaaaag ctgccgacaa gcagcccgtt 300  
gccgacaaaag ccgacgaggt tgaggaaaaag gcggacgagc cggagcggga aaagtcggac 360  
ggacaggcag tgcgcaagaa agcactgacg gaagagcgtg aacaaaaccgt cggggaaaaa 420  
gcgcagaaga aagatgccga aacggttaaa aaacaagcgg taaaaccatc taaagaaaca 480  
gagaaaaaag cttcaaaaaga agagaaaaag gcggagaagg aaaaagttgc acccaaaccg 540  
accccggaac aaatcctcaa cagcggcagc atcgaaaaag cgcgcagtgc cgctgccaaa 600  
gaagtgcaga aaatgaaaac gccgacaagg cggaagcaac gcattatctg caaatgggag 660  
cgtatgccga ccgccggagc gcggaagggc agcgtgccaa actggcaatc ttgggcatat 720  
cttccaaggt ggtcgggtat caggcgggac ataaaacgct ttaccgggtg caaagcggca 780  
atatgtctgc cgatgcggtg a 801

<210> 1270

<211> 266

<212> PRT

<213> Neisseria meningitidis

<400> 1270

Met Phe Met Asn Lys Phe Ser Gln Ser Gly Lys Gly Leu Ser Gly Phe  
1 5 10 15

Phe Phe Gly Leu Ile Leu Ala Thr Val Ile Ile Ala Gly Ile Leu Phe  
20 25 30

Tyr Leu Asn Gln Ser Gly Gln Asn Ala Phe Lys Ile Pro Val Pro Ser  
35 40 45

Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Pro Lys Asn Gln Pro Lys  
50 55 60

Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro  
 65 70 75 80  
 Asp Ala Ala Lys Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp  
 85 90 95  
 Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Asp  
 100 105 110  
 Glu Pro Glu Arg Glu Lys Ser Asp Gly Gln Ala Val Arg Lys Lys Ala  
 115 120 125  
 Leu Thr Glu Glu Arg Glu Gln Thr Val Gly Glu Lys Ala Gln Lys Lys  
 130 135 140  
 Asp Ala Glu Thr Val Lys Lys Gln Ala Val Lys Pro Ser Lys Glu Thr  
 145 150 155 160  
 Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Glu Lys Glu Lys Val  
 165 170 175  
 Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Gly Ser Ile Glu  
 180 185 190  
 Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Thr Pro  
 195 200 205  
 Thr Arg Arg Lys Gln Arg Ile Ile Cys Lys Trp Ala Arg Met Pro Thr  
 210 215 220  
 Ala Gly Ala Arg Lys Gly Ser Val Pro Asn Trp Gln Ser Trp Ala Tyr  
 225 230 235 240  
 Leu Pro Arg Trp Ser Val Ile Arg Arg Asp Ile Lys Arg Phe Thr Gly  
 245 250 255  
 Cys Lys Ala Ala Ile Cys Leu Pro Met Arg  
 260 265

<210> 1271

<211> 867

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1271

atgaaaacct tcttcaaaac cctttcgacc gcgtcactcg cgctcatcct cgcagcctgc 60  
 ggcggtcaaa aagacagcgc gccgcagcc tctgcgcgcg ccccttctgc cgataacggc 120  
 gcggcgaaaa aagaaatcgt cttcggcacg accgtgggcg acttcggcga tatggtcaaa 180  
 gaacaaatcc aagccgagct ggagaaaaaa ggctacaccg tcaaattggt cgaatttacc 240  
 gactatgtgc gccgaatct ggcattggcg gagggcgagt tggacatcaa cgtcttccaa 300  
 cacaaccct atcttgacga tttcaaaaaa gaacacaacc tggacatcac cgaagccttc 360  
 caagtgcga cgcgccttt gggactgtat ccgggcaaac tgaaatcgct ggaagaagtc 420  
 aaagacggca gcaccgtatc cgcgcccaac gaccggtcca acttcgcacg cgccttggtg 480  
 atgctgaacg aactgggttg gatcaaaactc aaagacggca tcaatccgct gaccgcatcc 540  
 aaagccgaca tcgcggaaaaa cctgaaaaac atcaaaatcg tcgagcttga agccgcacaa 600

ctgccgcgca gccgcgccga cgtggatttt gccgtcgtca acggcaacta cgccataagc 660  
agcggcatga agctgaccga agccctgttc caagagccga gctttgccta tgtcaactgg 720  
tctgccgtca aaaccgccga caaagacagc caatggctta aagacgtaac cgaggcctat 780  
aactccgacg cgttcaaagc ctacgcgcac aaacgcttcg agggctacaa atacccctgcc 840  
gcatggaatg aaggcgcagc caaataa 867

<210> 1272

<211> 288

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1272

Met	Lys	Thr	Phe	Phe	Lys	Thr	Leu	Ser	Thr	Ala	Ser	Leu	Ala	Leu	Ile
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Leu	Ala	Ala	Cys	Gly	Gly	Gln	Lys	Asp	Ser	Ala	Pro	Ala	Ala	Ser	Ala
			20					25					30		
Ala	Ala	Pro	Ser	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe
		35					40					45			
Gly	Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln
	50					55					60				
Ala	Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr
65					70				75						80
Asp	Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile
				85				90						95	
Asn	Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His
			100					105					110		
Asn	Leu	Asp	Ile	Thr	Glu	Ala	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly
		115					120					125			
Leu	Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser
	130					135					140				
Thr	Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Ala	Leu	Val
145					150					155					160
Met	Leu	Asn	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro
			165					170						175	
Leu	Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys
		180						185					190		
Ile	Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val
	195						200					205			
Asp	Phe	Ala	Val	Val	Asn	Gly	Asn	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys
	210					215					220				
Leu	Thr	Glu	Ala	Leu	Phe	Gln	Glu	Pro	Ser	Phe	Ala	Tyr	Val	Asn	Trp
225					230					235					240

Ser Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val  
245 250 255

Thr Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg  
260 265 270

Phe Glu Gly Tyr Lys Tyr Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys  
275 280 285

<210> 1273  
<211> 117  
<212> DNA  
<213> Neisseria meningitidis

<400> 1273  
caatggctta aagacgtaac cgaggcctat aactccgacg cgttcaaagc ctacgcgcac 60  
aaacgcttcg agggctacaa atcccctgcc gcatggaatg aaggcgcagc caaataa 117

<210> 1274  
<211> 38  
<212> PRT  
<213> Neisseria meningitidis

<400> 1274  
Gln Trp Leu Lys Asp Val Thr Glu Ala Tyr Asn Ser Asp Ala Phe Lys  
1 5 10 15

Ala Tyr Ala His Lys Arg Phe Glu Gly Tyr Lys Ser Pro Ala Ala Trp  
20 25 30

Asn Glu Gly Ala Ala Lys  
35

<210> 1275  
<211> 864  
<212> DNA  
<213> Neisseria meningitidis

<400> 1275  
atgaaaacct tcttcaaaac cctttccgcc gccgcactcg cgctcactct cgccgcctgc 60  
ggcgggtcaaa aagatagcgc gccgcgcgca tccgcttctg ccgccgccga caacggcgcg 120  
gcgaaaaaag naatcgtctt cggcacgacc gtcggcgact tcggcgatat ggtcaaagaa 180  
caaatccaac ccgagctgga gaaaaaaggc tacaccgtca aactggctga gtttaccgac 240  
tatgtgcgcc cgaatctggc attggctgag gccgagtngg acatcaacgt cttccaacac 300  
aaaccctatc ttgacgactt caaaaaagaa cacaatctgg acatcaccga agtcttccaa 360  
gtgccgaccg cgcttttggg actgtaccgc ggcaagctga aatcgctgga agaagtcaaa 420  
gacggcgacg ccgtatccgc gcccaacgac ccgtccaact tcgcccgcgt cttggtgatg 480  
ctcgacgaac tgggttgat caaactcaaa ganggcatca atccgctgac cgcattccaa 540

gcggacattg ccgaaaacct gaaaaacatc aaaatcgtcg agcttgaagc cgcgcaactg 600  
 ccgcgtagcc ggcgcgacgt ggattttgnc gtcgtcaacg gcaantacgc cataagcagc 660  
 ggcatgaagc tgaccgaagc cctgttccaa gaaccgagct ttgcctatgt caactgggtct 720  
 gccgtcaaaa ccgccgacaa agacagccaa tggcttaaag acgtaaccga ggctataaac 780  
 tccgacgcgt tcaaagccta cgcgcacaaa cgcttcgagg gctacaaatc cctgcccga 840  
 tggaatgaag gcgcagccaa ataa 864

<210> 1276

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 1276

Met	Lys	Thr	Phe	Phe	Lys	Thr	Leu	Ser	Ala	Ala	Ala	Leu	Ala	Leu	Ile
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Leu	Ala	Ala	Cys	Gly	Gly	Gln	Lys	Asp	Ser	Ala	Pro	Ala	Ala	Ser	Ala
			20					25						30	
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Xaa	Ile	Val	Phe	Gly
			35				40					45			
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln	Pro
	50					55					60				
Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr	Asp
65					70					75					80
Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Xaa	Asp	Ile	Asn
				85					90					95	
Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His	Asn
			100					105					110		
Leu	Asp	Ile	Thr	Glu	Val	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly	Leu
	115						120					125			
Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser	Thr
	130					135						140			
Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Val	Leu	Val	Met
145					150					155					160
Leu	Asp	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Xaa	Gly	Ile	Asn	Pro	Leu
			165						170					175	
Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys	Ile
			180					185					190		
Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val	Asp
	195						200					205			
Phe	Xaa	Val	Val	Asn	Gly	Xaa	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys	Leu
210						215					220				
Thr	Glu	Ala	Leu	Phe	Gln	Glu	Pro	Ser	Phe	Ala	Tyr	Val	Asn	Trp	Ser



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<400> 1278
Met Leu Asn Arg Val Phe Tyr Arg Ile Leu Gly Val Ala Asp Asn Leu
  1             5             10             15
Tyr Pro Cys Leu Ser Asp Phe Cys Phe Phe Thr Ile Ile Ala Gly Leu
          20             25             30
Pro Leu Gln Ala Val Leu Trp Glu Arg Arg Met Met Val Arg Arg Leu
          35             40             45
Ile Ile Gly Ile Ser Gly Ala Ser Gly Phe Gln Tyr Gly Val Lys Ala
  50             55             60
Leu Glu Leu Leu Arg Ala Gln Asp Val Glu Thr His Leu Val Val Ser
  65             70             75             80
Lys Gly Ala Glu Met Ala Arg Ala Ser Glu Thr Asp Tyr Thr Lys Asp
          85             90             95

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Glu Val Tyr Ala Leu Ala Asp Phe Val His Pro Ile Gly Asn Ile Gly  
 100 105 110  
 Ala Cys Ile Ala Ser Gly Thr Phe Lys Thr Asp Gly Met Leu Val Ala  
 115 120 125  
 Pro Cys Ser Met Arg Thr Leu Ala Ser Val Ala His Gly Phe Gly Asp  
 130 135 140  
 Asn Leu Leu Thr Arg Ala Ala Asp Val Val Leu Lys Glu Arg Arg Arg  
 145 150 155 160  
 Leu Val Leu Met Val Arg Glu Thr Pro Leu Asn Leu Ala His Leu Asp  
 165 170 175  
 Asn Met Lys Arg Val Thr Glu Met Gly Gly Val Val Phe Pro Pro Val  
 180 185 190  
 Pro Ala Met Tyr Arg Lys Pro Gln Thr Ala Asp Asp Ile Val Ala His  
 195 200 205  
 Ser Ile Ala His Thr Leu Ser Leu Phe Gly Ile Asp Thr Pro Asp Leu  
 210 215 220  
 Ala Glu Trp Gln Gly Met Ala Asp  
 225 230

<210> 1279  
 <211> 693  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1279  
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 aggcgatga tggtagcggc tttgataatc ggcacagcgg gggcgagcgg tttccaatac 180  
 ggcgtgaagg ctttggaact tttgcgcgcg caagatgtcg aaacgcacct tgttggtatcg 240  
 aaagtgccg agatggcgcg cgcttcggaa acggttatg cgagagacga ggtatatgcc 300  
 ttggcggact tcgtgcatcc gatcggcaat atcggggcgt gcattgccag cggtacgttt 360  
 aaaacggatg ggaatcgtgt cgcacctgt tcgatgcgga cgcttgccct tgcgcgcac 420  
 ggcttcggcg acaatctgct gacgcgtgcg gcggatgtgg ttttgaagga aaggcggcgg 480  
 ctggtgctga tggtagcgcg aacgcgcgtg aaccttgccc atttggacaa tatgaagcgg 540  
 gwaacggaaa tgggcggcgt ggtgtttccc cctgttcctg cgatgtaccg caaacgcgag 600  
 acggcggacg acatagtggc gcacagtgtt gcacacgctt tgcgcgtgtt cggaatcgat 660  
 acgccggatt cggcggaatg gcarggaatg gcg 693

<210> 1280  
 <211> 231  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1280  
 Met Leu Asn Arg Val Phe Tyr Arg Ile Leu Gly Val Ala Asp Asn Leu  
 1 5 10 15

Tyr Pro Arg Leu Ser Asp Phe Cys Phe Phe Thr Ile Ile Ala Gly Leu  
                   20                                  25                                  30  
 Pro Leu Gln Ala Val Leu Trp Glu Arg Arg Met Met Val Arg Arg Leu  
                   35                                  40                                  45  
 Ile Ile Gly Ile Ser Gly Ala Ser Gly Phe Gln Tyr Gly Val Lys Ala  
                   50                                  55                                  60  
 Leu Glu Leu Leu Arg Ala Gln Asp Val Glu Thr His Leu Val Val Ser  
                   65                                  70                                  75                                  80  
 Lys Gly Ala Glu Met Ala Arg Ala Ser Glu Thr Ala Tyr Ala Arg Asp  
                                   85                                  90                                  95  
 Glu Val Tyr Ala Leu Ala Asp Phe Val His Pro Ile Gly Asn Ile Gly  
                                   100                                  105                                  110  
 Ala Cys Ile Ala Ser Gly Thr Phe Lys Thr Asp Gly Met Leu Val Ala  
                                   115                                  120                                  125  
 Pro Cys Ser Met Arg Thr Leu Ala Ser Val Ala His Gly Phe Gly Asp  
                                   130                                  135                                  140  
 Asn Leu Leu Thr Arg Ala Ala Asp Val Val Leu Lys Glu Arg Arg Arg  
                                   145                                  150                                  155                                  160  
 Leu Val Leu Met Val Arg Glu Thr Pro Leu Asn Leu Ala His Leu Asp  
                                   165                                  170                                  175  
 Asn Met Lys Arg Xaa Thr Glu Met Gly Gly Val Val Phe Pro Pro Val  
                                   180                                  185                                  190  
 Pro Ala Met Tyr Arg Lys Pro Gln Thr Ala Asp Asp Ile Val Ala His  
                                   195                                  200                                  205  
 Ser Val Ala His Ala Leu Ser Leu Phe Gly Ile Asp Thr Pro Asp Ser  
                                   210                                  215                                  220  
 Ala Glu Trp Gln Gly Met Ala  
                                   225                                  230

<210> 1281

<211> 699

<212> DNA

<213> *Neisseria meningitidis*

<400> 1281

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 aggcggatga tggtagcgcg tttgataatc ggcatacgtg gggcgagcgg tttccaatac 180  
 ggcgtgaagg ctttgganct tttacgcgcg caagatatcg aaacgcacct tgtgttatcg 240  
 aaaggtgctg agatggcgcg cgcttcggaa acggnntatg cgagagacga ngtatatgcc 300  
 ttggcggact tngtgcaccc gatcggcaat atcggggcgt gcattgccag cggtagcttt 360  
 aaaacggacg ggatgctggt cgccccctgt tcgatgcgga cgcttgctc ggtcgtgcac 420

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ggcttcggcg acaacctctt gacgcgtgcg gcggatgtgg ttttgaagga aaggcggcgg 480
ctggtgctga tgggtgcgca aacgccgctg aaccttgccc atttgacaa tatgaancgg 540
gtaacggaaa tgggcggcgt ggtgtttccc cctgttctg cgatgtaccg caaacgcgag 600
acggcggacg acatagtggc gcacagtgtt gcacacgctt tgctcgtgtt cggaatcgat 660
acgccggatt cggcggaatg gcagggaatg gcggattaa 699

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<210> 1282  
 <211> 232  
 <212> PRT  
 <213> *Neisseria meningitidis*

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<400> 1282
Met Leu Asn Arg Ile Phe Tyr Arg Ile Leu Gly Val Ala Asp Asn Leu
  1             5             10             15

Tyr Pro Tyr Leu Ser Asp Phe Cys Phe Phe Thr Ile Ile Ala Gly Leu
          20             25             30

Pro Leu Gln Ala Val Leu Trp Glu Arg Arg Met Met Val Arg Arg Leu
      35             40             45

Ile Ile Gly Ile Ser Gly Ala Ser Gly Phe Gln Tyr Gly Val Lys Ala
  50             55             60

Leu Xaa Leu Leu Arg Ala Gln Asp Ile Glu Thr His Leu Val Val Ser
  65             70             75             80

Lys Gly Ala Glu Met Ala Arg Ala Ser Glu Thr Xaa Tyr Ala Arg Asp
          85             90             95

Xaa Val Tyr Ala Leu Ala Asp Xaa Val His Pro Ile Gly Asn Ile Gly
      100             105             110

Ala Cys Ile Ala Ser Gly Thr Phe Lys Thr Asp Gly Met Leu Val Ala
      115             120             125

Pro Cys Ser Met Arg Thr Leu Ala Ser Val Val His Gly Phe Gly Asp
      130             135             140

Asn Leu Leu Thr Arg Ala Ala Asp Val Val Leu Lys Glu Arg Arg Arg
      145             150             155             160

Leu Val Leu Met Val Arg Glu Thr Pro Leu Asn Leu Ala His Leu Asp
      165             170             175

Asn Met Xaa Arg Val Thr Glu Met Gly Gly Val Val Phe Pro Pro Val
      180             185             190

Pro Ala Met Tyr Arg Lys Pro Gln Thr Ala Asp Asp Ile Val Ala His
      195             200             205

Ser Val Ala His Ala Leu Ser Leu Phe Gly Ile Asp Thr Pro Asp Ser
      210             215             220

Ala Glu Trp Gln Gly Met Ala Asp
      225             230

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<210> 1283  
 <211> 699  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1283  
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 aggcggatga tggtagcgcg tttgataatc ggcacgcagc ggcgcagcgg tttccaatac 180  
 ggcgtgaagg ctttgaact tttgcgcgcg caagatgtcg aaacgcacct tgtggtatcg 240  
  
 aaaggcgcgg agatggcgcg cgcttcggaa acggattata cgaaagacga agtatatgcc 300  
 ttggctgatt tcgtccatcc gatcggcaat atcggggcgt gcattgccag cggtagcttt 360  
 aaaacggacg ggatgctggt cgcaccctgt tcgatgcgga cgcttgctc tgcgcgcac 420  
 ggcttcggcg acaacctctt gacgcgtgcg gcggatgtgg ttttgaagga aaggcggcgg 480  
 ctggtgctga tggtagcgca aacgccgctg aaccttgccc atttggacaa tatgaagcgg 540  
 gtaacggaaa tgggcggcgt ggtgtttccc cctgttcctg cgatgtaccg caagccgcag 600  
 acggcggacg acatagtggc gcacagtatc gcacacacgc tgcgcgtgtt cggaatcgat 660  
 acgccggatt tggcggaatg gcagggaatg gcggattaa 699

<210> 1284  
 <211> 232  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1284  
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 Tyr Pro Cys Leu Ser Asp Phe Cys Phe Phe Thr Ile Ile Ala Gly Leu  
 20 25 30  
 Pro Leu Gln Ala Val Leu Trp Glu Arg Arg Met Met Val Arg Arg Leu  
 35 40 45  
 Ile Ile Gly Ile Ser Gly Ala Ser Gly Phe Gln Tyr Gly Val Lys Ala  
 50 55 60  
 Leu Glu Leu Leu Arg Ala Gln Asp Val Glu Thr His Leu Val Val Ser  
 65 70 75 80  
 Lys Gly Ala Glu Met Ala Arg Ala Ser Glu Thr Asp Tyr Thr Lys Asp  
 85 90 95  
 Glu Val Tyr Ala Leu Ala Asp Phe Val His Pro Ile Gly Asn Ile Gly  
 100 105 110  
 Ala Cys Ile Ala Ser Gly Thr Phe Lys Thr Asp Gly Met Leu Val Ala  
 115 120 125  
 Pro Cys Ser Met Arg Thr Leu Ala Ser Val Ala His Gly Phe Gly Asp  
 130 135 140  
 Asn Leu Leu Thr Arg Ala Ala Asp Val Val Leu Lys Glu Arg Arg Arg

145                      150                      155                      160  
 Leu Val Leu Met Val Arg Glu Thr Pro Leu Asn Leu Ala His Leu Asp  
                                  165                      170                      175  
 Asn Met Lys Arg Val Thr Glu Met Gly Gly Val Val Phe Pro Pro Val  
                                  180                      185                      190  
 Pro Ala Met Tyr Arg Lys Pro Gln Thr Ala Asp Asp Ile Val Ala His  
                                  195                      200                      205  
 Ser Ile Ala His Thr Leu Ser Leu Phe Gly Ile Asp Thr Pro Asp Leu  
                                  210                      215                      220  
 Ala Glu Trp Gln Gly Met Ala Asp  
                                  225                      230

<210> 1285  
 <211> 699  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1285  
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 aggcggatga tggtagcgcg tttgataatc ggcatcagcg gggcgagcgg tttccaatac 180  
 ggcgtgaagg ctttggaact tttgcgcgcg caagatgtcg aaacgcacct tgttgtatcg 240  
 aaaggtgcgg agatggcgcg cgcttcggaa acggccttatg cgagagacga ggtatatgcc 300  
 ttggcggact tcgtgcatcc gatcggcaat atcggggcgt gcattgccag cgttacgttt 360  
 aaaacggatg ggatgctggt cgccccctgt tcgatgcgga cgcttgccctc tgtcgcgcac 420  
 ggcttcggcg acaatctgct gacgcgtgcg gcggatgtgg ttttgaagga aaggcggcgg 480  
 ctggtgctga tggtagcgga aacgcgcgtg aaccttgccc atttggacaa tatgaagcgg 540  
 gtaacggaaa tgggcggcgt ggtgtttccc cctgttcctg cgatgtaccg caaaccgcag 600  
 acggcggacg acatagtggc gcacagtgtt gcacacgctt tgtcgtctgt cggaatcgat 660  
 acgccggatt cggcggaatg gcagggaatg gcggattaa 699

<210> 1286  
 <211> 232  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1286  
 Met Leu Asn Arg Val Phe Tyr Arg Ile Leu Gly Val Ala Asp Asn Leu  
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 Tyr Pro Arg Leu Ser Asp Phe Cys Phe Phe Thr Ile Ile Ala Gly Leu  
                                   20                                  25                                  30  
 Pro Leu Gln Ala Val Leu Trp Glu Arg Arg Met Met Val Arg Arg Leu  
                                   35                                  40                                  45  
 Ile Ile Gly Ile Ser Gly Ala Ser Gly Phe Gln Tyr Gly Val Lys Ala  
   50                                  55                                  60  
 Leu Glu Leu Leu Arg Ala Gln Asp Val Glu Thr His Leu Val Val Ser



<400> 1288

Met Leu Asn Arg Ile Phe Tyr Arg Ile Leu Gly Val Ala Asp Asn Leu  
1 5 10 15

Tyr Pro Tyr Leu Ser Asp Phe Cys Phe Phe Thr Ile Ile Ala Gly Leu  
20 25 30

Pro Leu Gln Ala Val Leu Trp Glu Arg Arg Met Met Val Arg Arg Leu  
35 40 45

Ile Ile Gly Ile Ser Gly Ala Ser Gly Phe Gln Tyr Gly Val Lys Ala  
50 55 60

Leu Xaa Leu Leu Arg Ala Gln Asp Ile Glu Thr His Leu Val Val Ser  
65 70 75 80

Lys Gly Ala Glu Met Ala Arg Ala Ser Glu Thr Xaa Tyr Ala Arg Asp  
85 90 95

Xaa Val Tyr Ala Leu Ala Asp Xaa Val His Pro Ile Gly Asn Ile Gly  
100 105 110

Ala Cys Ile Ala Ser Gly Thr Phe Lys Thr Asp Gly Met Leu Val Ala  
115 120 125

Pro Cys Ser Met Arg Thr Leu Ala Ser Val Val His Gly Phe Gly Asp  
130 135 140

Asn Leu Leu Thr Arg Ala Ala Asp Val Val Leu Lys Glu Arg Arg Arg  
145 150 155 160

Leu Val Leu Met Val Arg Glu Thr Pro Leu Asn Leu Ala His Leu Asp  
165 170 175

Asn Met Xaa Arg Val Thr Glu Met Gly Gly Val Val Phe Pro Pro Val  
180 185 190

Pro Ala Met Tyr Arg Lys Pro Gln Thr Ala Asp Asp Ile Val Ala His  
195 200 205

Ser Val Ala His Ala Leu Ser Leu Phe Gly Ile Asp Thr Pro Asp Ser  
210 215 220

Ala Glu Trp Gln Gly Met Ala Asp  
225 230

<210> 1289

<211> 1368

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1289

atgttcagtt tcggctgggc gtttgaccgc ccgcagtatg agttgggttc gctgtgcgct 60  
gttgcggcac ttgcgtgccg gcgcgctttg ggggtgtttgg gtttggaac gcaaatcaag 120  
tggccaaacg atttggtcgt cggacgcgac aaattgggcg gcattctgat tgaaacagtc 180



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agggcgggcg gtaaaacggt tgccgtggtc ggtatcggca tcaatttcgt gctgcccag 240
gaagtggaaa acgccgttc cgtgcagtcg ctgtttcaga cggcatcgcg gcggggcaat 300
gccgatgccg ccgtattgct ggaaacattg cttgcggaac tgggcgcggt gttggaacaa 360
tatgcggaag aagggttcgc gccattttta aatgagtatg aaacggccaa ccgcgaccac 420
ggcaaggcgg tattgctggt gcgcgacggc gaaaccgtgt gcgaaggcac ggttaaaggc 480
gtggacggac gaggcggttct gcacttgaa acggcagaag gcgaacagac ggtcgtcagc 540
ggcgaaatca gcctgcggcc cgacaacagg tcggtttccg tgccgaagcg gccggattcg 600
gaacgttttt tgctgttgga agggcggaac agccggctca agtgggcgtg ggtggaaaac 660
ggcacgttcg caaccgtggg cagcgcgccg taccgcgatt tgtcgccttt gggcgcggag 720
tgggcggaag aggcggatgg aaatgtccgc atcgtcgggt gcgcgctgtg cggagaatcc 780
aaaaaggcac aagtgaagga acagctcgcc cgaaaaatcg agtggctgcc gtcttccgca 840
caggctttgg gcatacgcaa ccactaccgc caccgcgaag aacacggttc cgaccgttgg 900
ttcaacgcct tgggcagccg ccgcttcagc cgcaacgcct gcgtcgtcgt cagttgcggc 960
acggcggtaa cggttgacgc gctcaccgat gacggacatt atctcggcgg aaccatcatg 1020
cccggttccc acctgatgaa agaatcgctc gccgtccgaa ccgccaacct caaccgcccc 1080
gccggcaaac gttacccttt cccgaccaca acgggcaacg ccgtcgaag cggcatgatg 1140
gacgcggttt gcggctcgat aatgatgatg cacggccggt tgaaagaaaa aaacggcgcg 1200
ggcaagcctg tcgatgtcat cattaccggc gcgcgcgcgg cgaaagtcgc cgaagccctg 1260
ccgcctgcat ttttggcgga aaataccgtg cgctggcgcg acaacctcgt catccacggg 1320
ctgctgaacc tgattgcgcg cgaaggcggg gaatcggaac acgcttaa 1368

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<210> 1290

<211> 455

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1290

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Met Phe Ser Phe Gly Trp Ala Phe Asp Arg Pro Gln Tyr Glu Leu Gly
 1             5             10             15

Ser Leu Ser Pro Val Ala Ala Leu Ala Cys Arg Arg Ala Leu Gly Cys
      20             25             30

Leu Gly Leu Glu Thr Gln Ile Lys Trp Pro Asn Asp Leu Val Val Gly
 35             40             45

Arg Asp Lys Leu Gly Gly Ile Leu Ile Glu Thr Val Arg Ala Gly Gly
 50             55             60

Lys Thr Val Ala Val Val Gly Ile Gly Ile Asn Phe Val Leu Pro Lys
 65             70             75             80

Glu Val Glu Asn Ala Ala Ser Val Gln Ser Leu Phe Gln Thr Ala Ser
      85             90             95

Arg Arg Gly Asn Ala Asp Ala Ala Val Leu Leu Glu Thr Leu Leu Ala
 100             105             110

Glu Leu Gly Ala Val Leu Glu Gln Tyr Ala Glu Glu Gly Phe Ala Pro
 115             120             125

Phe Leu Asn Glu Tyr Glu Thr Ala Asn Arg Asp His Gly Lys Ala Val
 130             135             140

Leu Leu Leu Arg Asp Gly Glu Thr Val Cys Glu Gly Thr Val Lys Gly
 145             150             155             160

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Val	Asp	Gly	Arg	Gly	Val	Leu	His	Leu	Glu	Thr	Ala	Glu	Gly	Glu	Gln	165	170	175
Thr	Val	Val	Ser	Gly	Glu	Ile	Ser	Leu	Arg	Pro	Asp	Asn	Arg	Ser	Val	180	185	190
Ser	Val	Pro	Lys	Arg	Pro	Asp	Ser	Glu	Arg	Phe	Leu	Leu	Leu	Glu	Gly	195	200	205
Gly	Asn	Ser	Arg	Leu	Lys	Trp	Ala	Trp	Val	Glu	Asn	Gly	Thr	Phe	Ala	210	215	220
Thr	Val	Gly	Ser	Ala	Pro	Tyr	Arg	Asp	Leu	Ser	Pro	Leu	Gly	Ala	Glu	225	230	235
Trp	Ala	Glu	Lys	Ala	Asp	Gly	Asn	Val	Arg	Ile	Val	Gly	Cys	Ala	Val	245	250	255
Cys	Gly	Glu	Ser	Lys	Lys	Ala	Gln	Val	Lys	Glu	Gln	Leu	Ala	Arg	Lys	260	265	270
Ile	Glu	Trp	Leu	Pro	Ser	Ser	Ala	Gln	Ala	Leu	Gly	Ile	Arg	Asn	His	275	280	285
Tyr	Arg	His	Pro	Glu	Glu	His	Gly	Ser	Asp	Arg	Trp	Phe	Asn	Ala	Leu	290	295	300
Gly	Ser	Arg	Arg	Phe	Ser	Arg	Asn	Ala	Cys	Val	Val	Val	Ser	Cys	Gly	305	310	315
Thr	Ala	Val	Thr	Val	Asp	Ala	Leu	Thr	Asp	Asp	Gly	His	Tyr	Leu	Gly	325	330	335
Gly	Thr	Ile	Met	Pro	Gly	Phe	His	Leu	Met	Lys	Glu	Ser	Leu	Ala	Val	340	345	350
Arg	Thr	Ala	Asn	Leu	Asn	Arg	Pro	Ala	Gly	Lys	Arg	Tyr	Pro	Phe	Pro	355	360	365
Thr	Thr	Thr	Gly	Asn	Ala	Val	Ala	Ser	Gly	Met	Met	Asp	Ala	Val	Cys	370	375	380
Gly	Ser	Ile	Met	Met	Met	His	Gly	Arg	Leu	Lys	Glu	Lys	Asn	Gly	Ala	385	390	395
Gly	Lys	Pro	Val	Asp	Val	Ile	Ile	Thr	Gly	Gly	Gly	Ala	Ala	Lys	Val	405	410	415
Ala	Glu	Ala	Leu	Pro	Pro	Ala	Phe	Leu	Ala	Glu	Asn	Thr	Val	Arg	Val	420	425	430
Ala	Asp	Asn	Leu	Val	Ile	His	Gly	Leu	Leu	Asn	Leu	Ile	Ala	Ala	Glu	435	440	445
Gly	Gly	Glu	Ser	Glu	His	Ala										450	455	

<210> 1291  
 <211> 1167  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1291  
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 tggcccaatg atttggttgt cggacgcgac aaattgggcg gcattctgat tgaaacgggtc 180  
 aggacgggag gcaaaacggg tgccgtgggtc ggtatcggca tcaattttgt cctgccaan 240  
 gaagtagaaa atgccgcttc cgtgcaatcg ctgtttcaga cggcatcgcg gcggggcaat 300  
 gccgatgccg ccgtgctgct nnnnnnnnnn nnnnnnnnnn nnnnggaaat cagcctgcgg 360  
 tccgacnaca ggccgggttc cgtgncgaag cggcgggatt cggaacgttt tctgctgttg 420  
 gacggcggca acagccgggt caagtgggcg tgggtggaaa acggcacgtt cgcaaccgtc 480  
 ggtagcgcgc cgtaccgcga tttgtcgctt ttgggcgcgg agtgggcgga aaaggcggat 540  
 ggaaatgtcc gcacgtcgcg ttgcgtgtgt tgccggagaat tcaaaaaggc acaagtgcag 600  
 gaacagctcg cccgaaaaat cgagtggctg ccgtcttcgg cacaggcttt gtttggcata 660  
 cgcaaccact accgccaccc cgaagaacac ggttcgcgac gctggttcaa cgccttgggc 720  
 agccgcccgt tcagccgcaa cgcytgcgtc gtcgtcagtt gcggcacggc ggtaacgggt 780  
 gacgcgctca ccgatgacgg acattatctc ggrggaacca tcatgcccg tttccacctg 840  
 atgaaagaat cgctcgccgt ccgaaccgcc aacctcaacc ggcacgccgg taagcggtat 900  
 cctttccga ccacaacggg caatgccgtc gccagcggca tgatggatgc ggtttgcggc 960  
 tcggttatga tgatgcacgg gcgtttgaaa gaaaaaacgg gggcgggcaa gcctgtcgat 1020  
 gtcattcatta ccggcggcgg cgccggcaaaa gttgccgaag ccctgccgcc tgcatttttg 1080  
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<210> 1292  
 <211> 389  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1292  
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 Leu Gly Leu Asp Val Gln Ile Lys Trp Pro Asn Asp Leu Val Val Gly  
 35 40 45  
 Arg Asp Lys Leu Gly Gly Ile Leu Ile Glu Thr Val Arg Thr Gly Gly  
 50 55 60  
 Lys Thr Val Ala Val Val Gly Ile Gly Ile Asn Phe Val Leu Pro Xaa  
 65 70 75 80  
 Glu Val Glu Asn Ala Ala Ser Val Gln Ser Leu Phe Gln Thr Ala Ser  
 85 90 95  
 Arg Arg Gly Asn Ala Asp Ala Ala Val Leu Leu Xaa Xaa Xaa Xaa Xaa  
 100 105 110

Xaa Xaa Xaa Glu Ile Ser Leu Arg Ser Asp Xaa Arg Pro Val Ser Val  
115 120 125  
Xaa Lys Arg Arg Asp Ser Glu Arg Phe Leu Leu Leu Asp Gly Gly Asn  
130 135 140  
Ser Arg Leu Lys Trp Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val  
145 150 155 160  
Gly Ser Ala Pro Tyr Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala  
165 170 175  
Glu Lys Ala Asp Gly Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly  
180 185 190  
Glu Phe Lys Lys Ala Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu  
195 200 205  
Trp Leu Pro Ser Ser Ala Gln Ala Leu Phe Gly Ile Arg Asn His Tyr  
210 215 220  
Arg His Pro Glu Glu His Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly  
225 230 235 240  
Ser Arg Arg Phe Ser Arg Asn Ala Cys Val Val Val Ser Cys Gly Thr  
245 250 255  
Ala Val Thr Val Asp Ala Leu Thr Asp Asp Gly His Tyr Leu Gly Gly  
260 265 270  
Thr Ile Met Pro Gly Phe His Leu Met Lys Glu Ser Leu Ala Val Arg  
275 280 285  
Thr Ala Asn Leu Asn Arg His Ala Gly Lys Arg Tyr Pro Phe Pro Thr  
290 295 300  
Thr Thr Gly Asn Ala Val Ala Ser Gly Met Met Asp Ala Val Cys Gly  
305 310 315 320  
Ser Val Met Met Met His Gly Arg Leu Lys Glu Lys Thr Gly Ala Gly  
325 330 335  
Lys Pro Val Asp Val Ile Ile Thr Gly Gly Gly Ala Ala Lys Val Ala  
340 345 350  
Glu Ala Leu Pro Pro Ala Phe Leu Ala Glu Asn Thr Val Arg Val Ala  
355 360 365  
Asp Asn Leu Val Ile Tyr Gly Leu Leu Asn Met Ile Ala Ala Glu Gly  
370 375 380  
Arg Glu Tyr Glu His  
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<210> 1293

<211> 1368

<212> DNA

<213> *Neisseria meningitidis*

<400> 1293

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aggacgggcg gcaaaacggt tgccgtggtc ggtatcggca tcaatttcgt gctgcccaag 240
gaagtggaaa acgccgcttc cgtgcaatcg ctgtttcaga cggcatcgcg gcggggaaat 300
gccgatgccg ccgtgttgct ggaaacgctg ttggcggaac ttgatgcggt gttgttgcaa 360
tatgcgcggg acggatttgc gccttttgtg gcggaatatc aggcgtgcaa ccgcgaccac 420
ggcaaggcgg tattgctgtt gcgcgacggc gaaaccgtgt tcgaaggcac ggttaaaggc 480
gtggacggac aaggcgttct gcacttgga acgcgagagg gcaaacagac ggtcgtcagc 540
ggcgaaatca gcctgcggtc cgacgacagg ccggtttccg tgccgaagcg gcgggattcg 600
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tgggcggaag aggtggatgg aaatgtccgc atcgtcgggt gcgcgctgtg cggagaattc 780
aaaaaggcac aagtgcagga acagctcgcc cgaaaaatcg agtggctgcc gtcttccgca 840
caggcctttg gcatacagca ccactaccg caccocgaag aacacggttc cgaccgtcgg 900
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acggcggtaa cggttgacgc gctcaccgat gacggacatt atctcggggg aaccatcatg 1020
cccggtttcc acctgatgaa agaatcgctc gccgtccgaa ccgccaacct caaccggcac 1080
gccggttaagc gttatccttt cccgaccaca acgggcaatg ccgtcgccag cggcatgatg 1140
gatgcggttt gcggtcgggt tatgatgatg cacgggcgtt tgaaagaaaa aaccggggcg 1200
ggcaagcctg tcgatgtcat cattaccggc ggcggcgcgg caaaagtgc cgaagccctg 1260
ccgcctgcat ttttggcgga aaataccgtg cgcgtggcgg acaacctcgt cattcacggg 1320
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<210> 1294

<211> 455

<212> PRT

<213> *Neisseria meningitidis*

<400> 1294

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Ser Leu Ser Pro Val Ala Ala Val Ala Cys Arg Arg Ala Leu Ser Arg
      20                      25                      30

Leu Gly Leu Lys Thr Gln Ile Lys Trp Pro Asn Asp Leu Val Val Gly
    35                      40                      45

Arg Asp Lys Leu Gly Gly Ile Leu Ile Glu Thr Val Arg Thr Gly Gly
    50                      55                      60

Lys Thr Val Ala Val Val Gly Ile Gly Ile Asn Phe Val Leu Pro Lys
    65                      70                      75                      80

Glu Val Glu Asn Ala Ala Ser Val Gln Ser Leu Phe Gln Thr Ala Ser
      85                      90                      95

Arg Arg Gly Asn Ala Asp Ala Ala Val Leu Leu Glu Thr Leu Leu Ala
    100                      105                      110
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Glu Leu Asp Ala Val Leu Leu Gln Tyr Ala Arg Asp Gly Phe Ala Pro  
 115 120 125  
 Phe Val Ala Glu Tyr Gln Ala Ala Asn Arg Asp His Gly Lys Ala Val  
 130 135 140  
 Leu Leu Leu Arg Asp Gly Glu Thr Val Phe Glu Gly Thr Val Lys Gly  
 145 150 155 160  
 Val Asp Gly Gln Gly Val Leu His Leu Glu Thr Ala Glu Gly Lys Gln  
 165 170 175  
 Thr Val Val Ser Gly Glu Ile Ser Leu Arg Ser Asp Asp Arg Pro Val  
 180 185 190  
 Ser Val Pro Lys Arg Arg Asp Ser Glu Arg Phe Leu Leu Leu Asp Gly  
 195 200 205  
 Gly Asn Ser Arg Leu Lys Trp Ala Trp Val Glu Asn Gly Thr Phe Ala  
 210 215 220  
 Thr Val Gly Ser Ala Pro Tyr Arg Asp Leu Ser Pro Leu Gly Ala Glu  
 225 230 235 240  
 Trp Ala Glu Lys Val Asp Gly Asn Val Arg Ile Val Gly Cys Ala Val  
 245 250 255  
 Cys Gly Glu Phe Lys Lys Ala Gln Val Gln Glu Gln Leu Ala Arg Lys  
 260 265 270  
 Ile Glu Trp Leu Pro Ser Ser Ala Gln Ala Leu Gly Ile Arg Asn His  
 275 280 285  
 Tyr Arg His Pro Glu Glu His Gly Ser Asp Arg Trp Phe Asn Ala Leu  
 290 295 300  
 Gly Ser Arg Arg Phe Ser Arg Asn Ala Cys Val Val Val Ser Cys Gly  
 305 310 315 320  
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 Thr Thr Thr Gly Asn Ala Val Ala Ser Gly Met Met Asp Ala Val Cys  
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 Gly Ser Val Met Met Met His Gly Arg Leu Lys Glu Lys Thr Gly Ala  
 385 390 395 400  
 Gly Lys Pro Val Asp Val Ile Ile Thr Gly Gly Gly Ala Ala Lys Val  
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Ala Glu Ala Leu Pro Pro Ala Phe Leu Ala Glu Asn Thr Val Arg Val  
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Gly Gly Glu Ser Glu His Thr  
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<210> 1295

<211> 1779

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1295

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<210> 1296

<211> 592

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1296

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Asp	Gly	Leu	Pro	Gln	His	Val	Ser	Gln	Leu	Ala	Arg	Glu	Ala	Asp	Met	20	25	30
Lys	Pro	Gln	Gln	Leu	Asn	Gly	Phe	Trp	Gln	Gln	Met	Pro	Ala	His	Ile	35	40	45
Arg	Gly	Leu	Leu	Arg	Gln	His	Asp	Gly	Tyr	Trp	Arg	Leu	Val	Arg	Pro	50	55	60
Leu	Ala	Val	Phe	Asp	Ala	Glu	Gly	Leu	Arg	Asp	Leu	Gly	Glu	Arg	Ser	65	70	75
Gly	Phe	Gln	Thr	Ala	Leu	Lys	His	Glu	Cys	Ala	Ser	Ser	Asn	Asp	Glu	85	90	95
Ile	Leu	Glu	Leu	Ala	Arg	Ile	Ala	Pro	Asp	Lys	Ala	His	Lys	Thr	Ile	100	105	110
Cys	Val	Thr	His	Leu	Gln	Ser	Lys	Gly	Arg	Gly	Arg	Gln	Gly	Arg	Lys	115	120	125
Trp	Ser	His	Arg	Leu	Gly	Glu	Cys	Leu	Met	Phe	Ser	Phe	Gly	Trp	Ala	130	135	140
Phe	Asp	Arg	Pro	Gln	Tyr	Glu	Leu	Gly	Ser	Leu	Ser	Pro	Val	Ala	Ala	145	150	155
Leu	Ala	Cys	Arg	Arg	Ala	Leu	Gly	Cys	Leu	Gly	Leu	Glu	Thr	Gln	Ile	165	170	175
Lys	Trp	Pro	Asn	Asp	Leu	Val	Val	Gly	Arg	Asp	Lys	Leu	Gly	Gly	Ile	180	185	190
Leu	Ile	Glu	Thr	Val	Arg	Ala	Gly	Gly	Lys	Thr	Val	Ala	Val	Val	Gly	195	200	205
Ile	Gly	Ile	Asn	Phe	Val	Leu	Pro	Lys	Glu	Val	Glu	Asn	Ala	Ala	Ser	210	215	220
Val	Gln	Ser	Leu	Phe	Gln	Thr	Ala	Ser	Arg	Arg	Gly	Asn	Ala	Asp	Ala	225	230	235
Ala	Val	Leu	Leu	Glu	Thr	Leu	Leu	Ala	Glu	Leu	Gly	Ala	Val	Leu	Glu	245	250	255
Gln	Tyr	Ala	Glu	Glu	Gly	Phe	Ala	Pro	Phe	Leu	Asn	Glu	Tyr	Glu	Thr	260	265	270
Ala	Asn	Arg	Asp	His	Gly	Lys	Ala	Val	Leu	Leu	Leu	Arg	Asp	Gly	Glu	275	280	285
Thr	Val	Cys	Glu	Gly	Thr	Val	Lys	Gly	Val	Asp	Gly	Arg	Gly	Val	Leu	290	295	300
His	Leu	Glu	Thr	Ala	Glu	Gly	Glu	Gln	Thr	Val	Val	Ser	Gly	Glu	Ile	305	310	315
																		320



Ser Leu Arg Pro Asp Asn Arg Ser Val Ser Val Pro Lys Arg Pro Asp  
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 Ser Glu Arg Phe Leu Leu Leu Glu Gly Gly Asn Ser Arg Leu Lys Trp  
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 Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val Gly Ser Ala Pro Tyr  
 355 360 365  
 Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Ala Asp Gly  
 370 375 380  
 Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Ser Lys Lys Ala  
 385 390 395 400  
 Gln Val Lys Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro Ser Ser  
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 Ala Gln Ala Leu Gly Ile Arg Asn His Tyr Arg His Pro Glu Glu His  
 420 425 430  
 Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe Ser Arg  
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 Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val Asp Ala  
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 Leu Thr Asp Asp Gly His Tyr Leu Gly Gly Thr Ile Met Pro Gly Phe  
 465 470 475 480  
 His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn Leu Asn Arg  
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 Pro Ala Gly Lys Arg Tyr Pro Phe Pro Thr Thr Thr Gly Asn Ala Val  
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 Ala Ser Gly Met Met Asp Ala Val Cys Gly Ser Ile Met Met Met His  
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 Gly Arg Leu Lys Glu Lys Asn Gly Ala Gly Lys Pro Val Asp Val Ile  
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 Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala  
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<211> 1779  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1297  
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<210> 1298  
 <211> 592  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1298  
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 Lys Pro Gln Gln Leu Asn Gly Phe Trp Gln Gln Met Pro Ala His Ile  
 35 40 45  
 Arg Gly Leu Leu Arg Gln His Asp Gly Tyr Trp Arg Leu Val Arg Pro  
 50 55 60  
 Leu Ala Val Phe Asp Ala Glu Gly Leu Arg Glu Leu Gly Glu Arg Ser

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Gly Phe Gln Thr Ala Leu Lys His Glu Cys Ala Ser Ser Asn Asp Glu	85		90		95	
Ile Leu Glu Leu Ala Arg Ile Ala Pro Asp Lys Ala His Lys Thr Ile	100		105		110	
Cys Val Thr His Leu Gln Ser Lys Gly Arg Gly Arg Gln Gly Arg Lys	115		120		125	
Trp Ser His Arg Leu Gly Glu Cys Leu Met Phe Ser Phe Gly Trp Val	130		135		140	
Phe Asp Arg Pro Gln Tyr Glu Leu Gly Ser Leu Ser Pro Val Ala Ala	145		150		155	160
Val Ala Cys Arg Arg Ala Leu Ser Arg Leu Gly Leu Asp Val Gln Ile	165		170		175	
Lys Trp Pro Asn Asp Leu Val Val Gly Arg Asp Lys Leu Gly Gly Ile	180		185		190	
Leu Ile Glu Thr Val Arg Thr Gly Gly Lys Thr Val Ala Val Val Gly	195		200		205	
Ile Gly Ile Asn Phe Val Leu Pro Lys Glu Val Glu Asn Ala Ala Ser	210		215		220	
Val Gln Ser Leu Phe Gln Thr Ala Ser Arg Arg Gly Asn Ala Asp Ala	225		230		235	240
Ala Val Leu Leu Glu Thr Leu Leu Val Glu Leu Asp Ala Val Leu Leu	245		250		255	
Gln Tyr Ala Arg Asp Gly Phe Ala Pro Phe Val Ala Glu Tyr Gln Ala	260		265		270	
Ala Asn Arg Asp His Gly Lys Ala Val Leu Leu Leu Arg Asp Gly Glu	275		280		285	
Thr Val Phe Glu Gly Thr Val Lys Gly Val Asp Gly Gln Gly Val Leu	290		295		300	
His Leu Glu Thr Ala Glu Gly Lys Gln Thr Val Val Ser Gly Glu Ile	305		310		315	320
Ser Leu Arg Ser Asp Asp Arg Pro Val Ser Val Pro Lys Arg Arg Asp	325		330		335	
Ser Glu Arg Phe Leu Leu Leu Asp Gly Gly Asn Ser Arg Leu Lys Trp	340		345		350	
Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val Gly Ser Ala Pro Tyr	355		360		365	
Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Ala Asp Gly						

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Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Phe Lys Lys Ala				
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Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro Ser Ser				
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Ala Gln Ala Leu Gly Ile Arg Asn His Tyr Arg His Pro Glu Glu His				
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Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe Ser Arg				
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Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val Asp Ala				
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Leu Thr Asp Asp Gly His Tyr Leu Gly Gly Thr Ile Met Pro Gly Phe				
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His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn Leu Asn Arg				
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His Ala Gly Lys Arg Tyr Pro Phe Pro Thr Thr Thr Gly Asn Ala Val				
	500		505	510
Ala Ser Gly Met Met Asp Ala Val Cys Gly Ser Val Met Met Met His				
	515		520	525
Gly Arg Leu Lys Glu Lys Thr Gly Ala Gly Lys Pro Val Asp Val Ile				
	530		535	540
Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala				
	545		550	555 560
Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile Tyr				
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<210> 1299

<211> 1779

<212> DNA

<213> *Neisseria meningitidis*

<400> 1299

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<210> 1300

<211> 592

<212> PRT

<213> Neisseria meningitidis

<400> 1300

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Lys Pro Gln Gln Leu Asn Gly Phe Trp Gln Gln Met Pro Ala His Ile
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```

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Arg Gly Leu Leu Arg Gln His Asp Gly Tyr Trp Arg Leu Val Arg Pro
      50              55              60

```

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Leu Ala Val Phe Asp Ala Glu Gly Leu Arg Glu Leu Gly Glu Arg Ser
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Gly Phe Gln Thr Ala Leu Lys His Glu Cys Ala Ser Ser Asn Asp Glu
      85              90              95

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Ile Leu Glu Leu Ala Arg Ile Ala Pro Asp Lys Ala His Lys Thr Ile
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Cys Val Thr His Leu Gln Ser Lys Gly Arg Gly Arg Gln Gly Arg Lys
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Trp Ser His Arg Leu Gly Glu Cys Leu Met Phe Ser Phe Gly Trp Val

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Lys Trp Pro Asn Asp Leu Val Val Gly Arg Asp Lys Leu Gly Gly Ile 180 185 190		
Leu Ile Glu Thr Val Arg Thr Gly Gly Lys Thr Val Ala Val Val Gly 195 200 205		
Ile Gly Ile Asn Phe Val Leu Pro Lys Glu Val Glu Asn Ala Ala Ser 210 215 220		
Val Gln Ser Leu Phe Gln Thr Ala Ser Arg Arg Gly Asn Ala Asp Ala 225 230 235 240		
Ala Val Leu Leu Glu Thr Leu Leu Ala Glu Leu Asp Ala Val Leu Leu 245 250 255		
Gln Tyr Ala Arg Asp Gly Phe Ala Pro Phe Val Ala Glu Tyr Gln Ala 260 265 270		
Ala Asn Arg Asp His Gly Lys Ala Val Leu Leu Leu Arg Asp Gly Glu 275 280 285		
Thr Val Phe Glu Gly Thr Val Lys Gly Val Asp Gly Gln Gly Val Leu 290 295 300		
His Leu Glu Thr Ala Glu Gly Lys Gln Thr Val Val Ser Gly Glu Ile 305 310 315 320		
Ser Leu Arg Ser Asp Asp Arg Pro Val Ser Val Pro Lys Arg Arg Asp 325 330 335		
Ser Glu Arg Phe Leu Leu Leu Asp Gly Gly Asn Ser Arg Leu Lys Trp 340 345 350		
Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val Gly Ser Ala Pro Tyr 355 360 365		
Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Val Asp Gly 370 375 380		
Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Phe Lys Lys Ala 385 390 395 400		
Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro Ser Ser 405 410 415		
Ala Gln Ala Leu Gly Ile Arg Asn His Tyr Arg His Pro Glu Glu His 420 425 430		
Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe Ser Arg		

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Leu Thr Asp Asp Gly His Tyr Leu Gly Gly Thr Ile Met Pro Gly Phe		
465	470	475
His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn Leu Asn Arg		
	485	490
His Ala Gly Lys Arg Tyr Pro Phe Pro Thr Thr Thr Gly Asn Ala Val		
	500	505
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Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala		
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Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile His		
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 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1301

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tgctccgttg gtttggacat gattgccgtt cccggcgaca cgcccgcgca caccatttcc 1140  
 ggcacatcg ccgacgaagc cgccatcggc atgatcaaca gcaaaaccac cgccgtgcg 1200  
 attattccgg taacgggcaa aaccgtcggc gacagcgtcg agttcggcgg tctgttgggc 1260  
 tacgcgcctg taatgccggc aaaagaaggt tcgtgcgaag tgttcgtcaa ccggggcggc 1320  
 aggattcccg caccggttca atcgatgaaa aactga 1356

<210> 1302

<211> 451

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1302

Met	Ser	Ile	Gln	Ser	Gly	Glu	Ile	Leu	Glu	Thr	Val	Lys	Met	Val	Ala
1				5					10					15	
Asp	Arg	Asn	Phe	Asp	Val	Arg	Thr	Ile	Thr	Ile	Gly	Ile	Asp	Leu	His
			20					25					30		
Asp	Cys	Ile	Ser	Thr	Asp	Ile	Asp	Val	Leu	Asn	Gln	Asn	Ile	Tyr	Asn
		35					40					45			
Lys	Ile	Thr	Thr	Val	Gly	Lys	Asp	Leu	Val	Ala	Thr	Ala	Lys	His	Leu
	50					55					60				
Ser	Ala	Lys	Tyr	Gly	Val	Pro	Ile	Val	Asn	Gln	Arg	Ile	Ser	Val	Thr
65					70					75					80
Pro	Ile	Ala	Gln	Ile	Ala	Ala	Ala	Thr	Lys	Ala	Asp	Ser	Tyr	Val	Ser
				85					90					95	
Val	Ala	Gln	Thr	Leu	Asp	Lys	Ala	Ala	Lys	Ala	Ile	Gly	Val	Ser	Phe
		100						105					110		
Ile	Gly	Gly	Phe	Ser	Ala	Leu	Val	Gln	Lys	Gly	Met	Ser	Pro	Ser	Asp
	115						120					125			
Glu	Val	Leu	Ile	Arg	Ser	Val	Pro	Glu	Ala	Met	Lys	Thr	Thr	Asp	Ile
	130					135					140				
Val	Cys	Ser	Ser	Ile	Asn	Ile	Gly	Ser	Thr	Arg	Ala	Gly	Ile	Asn	Met
145					150					155					160
Asp	Ala	Val	Lys	Leu	Ala	Gly	Glu	Thr	Ile	Lys	Arg	Thr	Ala	Glu	Ile
			165						170					175	
Thr	Pro	Glu	Gly	Phe	Gly	Cys	Ala	Lys	Ile	Val	Val	Phe	Cys	Asn	Ala
		180						185					190		
Val	Glu	Asp	Asn	Pro	Phe	Met	Ala	Gly	Ala	Phe	His	Gly	Ser	Gly	Glu
	195						200					205			
Ala	Asp	Ala	Val	Ile	Asn	Val	Gly	Val	Ser	Gly	Pro	Gly	Val	Val	Lys
210						215					220				
Ala	Ala	Leu	Glu	Asn	Ser	Asp	Ala	Val	Ser	Leu	Thr	Glu	Val	Ala	Glu



225		230		235		240
Val Val Lys Lys Thr Ala Phe Lys Ile Thr Arg Val Gly Glu Leu Ile						
		245		250		255
Gly Arg Glu Ala Ser Lys Met Leu Asn Ile Pro Phe Gly Ile Leu Asp						
		260		265		270
Leu Ser Leu Ala Pro Thr Pro Ala Val Gly Asp Ser Val Ala Arg Ile						
		275		280		285
Leu Glu Glu Met Gly Leu Ser Val Cys Gly Thr His Gly Thr Thr Ala						
		290		295		300
Ala Leu Ala Leu Leu Asn Asp Ala Val Lys Lys Gly Gly Met Met Ala						
305		310		315		320
Ser Ser Ala Val Gly Gly Leu Ser Gly Ala Phe Ile Pro Val Ser Glu						
		325		330		335
Asp Glu Gly Met Ile Ala Ala Ala Glu Ala Gly Val Leu Thr Leu Asp						
		340		345		350
Lys Leu Glu Ala Met Thr Ala Val Cys Ser Val Gly Leu Asp Met Ile						
		355		360		365
Ala Val Pro Gly Asp Thr Pro Ala His Thr Ile Ser Gly Ile Ile Ala						
		370		375		380
Asp Glu Ala Ala Ile Gly Met Ile Asn Ser Lys Thr Thr Ala Val Arg						
385		390		395		400
Ile Ile Pro Val Thr Gly Lys Thr Val Gly Asp Ser Val Glu Phe Gly						
		405		410		415
Gly Leu Leu Gly Tyr Ala Pro Val Met Pro Ala Lys Glu Gly Ser Cys						
		420		425		430
Glu Val Phe Val Asn Arg Gly Gly Arg Ile Pro Ala Pro Val Gln Ser						
		435		440		445
Met Lys Asn						
		450				

<210> 1303

<211> 1344

<212> DNA

<213> Neisseria meningitidis

<400> 1303

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gtgttgaacc aaaatatatta caataaaaatt accacagtcg gcaaagactt ggtcactacg 180
gcaaaatatc tgtctgccaa atacggcgta ccgattgtga atcagcgcat ttccgttacg 240
ccgattgccc aaatcgcggc ggccacccat gctgattctt acgtcagcgt ggcgcaaact 300
ttggataaag ctgccaaagc catcgggtgtg tcttttatcg gcggtttttc cgcgttggtg 360

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caaaaagggga tgtcgccttc ggatgaggtg ttaatccgct ccattcccga agcgatgaag 420
actaccgata ttgtgtgcwg ctccatcaat atcggcagta cgcgtgccgg tatcaatatg 480
gatgcggtca agctggcggg cgaaaccgtc aaacgcacgg cggaaatcac gcccgaaggt 540
ttcggctgcg ctaaaattgt cgtgttctgc aacgcggtgg aagacaaccc gtttwtggcg 600
ggcgcgtttc atggttcggg cgatgccgtt atcaatgtcg gcgtatccgg cccaggtgtc 660
gtaaaagccg cgttgaaaaa ttcagatgca acgacattga ccgaagttgc ggaagtagtg 720
aagaaaactg ctttcaaaat taccgcgctg ggcgaactca tcggccgcga agcctcaaaa 780
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accggtaaaa ccgtcggcga cacggtcgag ttcggcggtt tggtgggcta cgcgcctgtg 1260
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ccggttcaat cgatgaaaaa ctga 1344

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<210> 1304

<211> 447

<212> PRT

<213> *Neisseria meningitidis*

<400> 1304

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Met Ser Ile Gln Ser Gly Glu Ile Leu Glu Thr Val Lys Met Val Ala
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Asp Gln Asn Phe Asp Val Arg Thr Ile Thr Ile Gly Ile Asp Leu His
      20             25            30

Asp Cys Ile Ser Ser Asp Ile Asn Val Leu Asn Gln Asn Ile Tyr Asn
      35             40            45

Lys Ile Thr Thr Val Gly Lys Asp Leu Val Thr Thr Ala Lys Tyr Leu
      50             55            60

Ser Ala Lys Tyr Gly Val Pro Ile Val Asn Gln Arg Ile Ser Val Thr
      65             70            75            80

Pro Ile Ala Gln Ile Ala Ala Ala Thr His Ala Asp Ser Tyr Val Ser
      85             90            95

Val Ala Gln Thr Leu Asp Lys Ala Ala Lys Ala Ile Gly Val Ser Phe
      100            105            110

Ile Gly Gly Phe Ser Ala Leu Val Gln Lys Gly Met Ser Pro Ser Asp
      115            120            125

Glu Val Leu Ile Arg Ser Ile Pro Glu Ala Met Lys Thr Thr Asp Ile
      130            135            140

Val Cys Xaa Ser Ile Asn Ile Gly Ser Thr Arg Ala Gly Ile Asn Met
      145            150            155            160

Asp Ala Val Lys Leu Ala Gly Glu Thr Val Lys Arg Thr Ala Glu Ile
      165            170            175

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Thr Pro Glu Gly Phe Gly Cys Ala Lys Ile Val Val Phe Cys Asn Ala  
 180 185 190  
 Val Glu Asp Asn Pro Phe Xaa Ala Gly Ala Phe His Gly Ser Gly Asp  
 195 200 205  
 Ala Val Ile Asn Val Gly Val Ser Gly Pro Gly Val Val Lys Ala Ala  
 210 215 220  
 Leu Glu Asn Ser Asp Ala Thr Thr Leu Thr Glu Val Ala Glu Val Val  
 225 230 235 240  
 Lys Lys Thr Ala Phe Lys Ile Thr Arg Val Gly Glu Leu Ile Gly Arg  
 245 250 255  
 Glu Ala Ser Lys Met Leu Asn Ile Pro Phe Gly Ile Leu Asp Leu Ser  
 260 265 270  
 Pro Thr Pro Pro Val Gly Asp Ser Val Ala Arg Ile Leu Glu Glu Met  
 275 280 285  
 Gly Leu Ser Val Cys Gly Thr His Gly Thr Thr Ala Ala Leu Ala Leu  
 290 295 300  
 Leu Asn Asp Ala Val Lys Lys Gly Gly Met Met Ala Ser Ser Ala Val  
 305 310 315 320  
 Gly Gly Leu Ser Gly Ala Phe Ile Pro Val Ser Glu Asp Glu Gly Met  
 325 330 335  
 Ile Xaa Ala Ala Glu Ala Gly Val Leu Thr Leu Asp Lys Leu Glu Ala  
 340 345 350  
 Met Thr Ala Val Cys Ser Val Gly Leu Asp Met Ile Ala Val Pro Gly  
 355 360 365  
 Asp Thr Pro Ala His Thr Ile Ser Gly Ile Ile Ala Asp Glu Ala Ala  
 370 375 380  
 Ile Gly Met Ile Asn Ser Lys Thr Thr Ala Val Arg Ile Ile Pro Val  
 385 390 395 400  
 Thr Gly Lys Thr Val Gly Asp Thr Val Glu Phe Gly Gly Leu Leu Gly  
 405 410 415  
 Tyr Ala Pro Val Met Pro Val Lys Glu Gly Ser Cys Glu Val Phe Val  
 420 425 430  
 Asn Arg Gly Gly Arg Ile Pro Ala Pro Val Gln Ser Met Lys Asn  
 435 440 445

<210> 1305

<211> 1356

<212> DNA

<213> Neisseria meningitidis

<400> 1305

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gtgttgaacc aaaatattta caacaaaatt accacggtcg gcaaagactt ggtggcgaca 180
gcaaaatata tgtctgccaa atacggcgtg cggattgtga atcagcgcac ttctgtcacg 240
ccgattgccc aaatcgcggc ggccacccat gctgattctt acgtcagcgt ggcgcaaact 300
ttggataagg ctgccaaagc catcggcgtg tcttttattg gcggcttttc cgcgctggtg 360
caaaaaggta tgtcgccttc tgacgaggtg ttaatccgtt ccattcccga agcgatgaag 420
actactgata tcgtgtgcag ctccatcaat atcggcagta cgcgcgccgg tatcaatatg 480
gacgcggtca gactggcggg cgaaaccatc aaacgcacgg ctgaaatcac actagaaggt 540
ttcggctgcg ccaaaatcgt cgtgttctgc aacgcgggtg aagacaaccc gtttatggcg 600
ggcgcgtttc acggctcagg cgaagcggat gctgtgatta atgtcggcgt atccggcccg 660
ggtgtcgtaa aagccgcgtt ggaaaattcg gatgcaacga cattgaccga agttgccgaa 720
gttgtgaaga aaaccgcctt caaaattacc cgcgtgggcg aactcatcgg ccgcgaagcc 780
tcaaaaatgc tgaatatccc gtttggtatt ctcgacttgt cgctggcacc gaccctgcc 840
gtcggcgact cggtggcgcg cattcttgaa gaaatgggtt tgagcgtctg cgttacgcac 900
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tgttcggtcg gcttgatat gattgccgtt cccggcgaca caccgcgcga caccatttcc 1140
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attattccgg taaccggtaa aaccgtcggc gacagcgtcg agttcggcgg cctgttgggc 1260
tacgcgcctg taatgccggt aaaagaaggc tcatgcgaag tgttcgtcaa ccggggcggc 1320
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<210> 1306

<211> 451

<212> PRT

<213> *Neisseria meningitidis*

<400> 1306

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Met Ser Ile Gln Ser Gly Glu Ile Leu Glu Thr Val Lys Met Val Ala
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Asp Gln Asn Phe Asp Val Arg Thr Ile Thr Ile Gly Ile Asp Leu His
      20                      25                      30

Asp Cys Ile Ser Thr Asp Ile Asp Val Leu Asn Gln Asn Ile Tyr Asn
      35                      40                      45

Lys Ile Thr Thr Val Gly Lys Asp Leu Val Ala Thr Ala Lys Tyr Leu
      50                      55                      60

Ser Ala Lys Tyr Gly Val Pro Ile Val Asn Gln Arg Ile Ser Val Thr
      65                      70                      75                      80

Pro Ile Ala Gln Ile Ala Ala Ala Thr His Ala Asp Ser Tyr Val Ser
      85                      90                      95

Val Ala Gln Thr Leu Asp Lys Ala Ala Lys Ala Ile Gly Val Ser Phe
      100                     105                     110

Ile Gly Gly Phe Ser Ala Leu Val Gln Lys Gly Met Ser Pro Ser Asp
      115                     120                     125
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Glu	Val	Leu	Ile	Arg	Ser	Ile	Pro	Glu	Ala	Met	Lys	Thr	Thr	Asp	Ile		
130						135					140						
Val	Cys	Ser	Ser	Ile	Asn	Ile	Gly	Ser	Thr	Arg	Ala	Gly	Ile	Asn	Met		
145					150					155					160		
Asp	Ala	Val	Arg	Leu	Ala	Gly	Glu	Thr	Ile	Lys	Arg	Thr	Ala	Glu	Ile		
				165					170					175			
Thr	Leu	Glu	Gly	Phe	Gly	Cys	Ala	Lys	Ile	Val	Val	Phe	Cys	Asn	Ala		
			180					185					190				
Val	Glu	Asp	Asn	Pro	Phe	Met	Ala	Gly	Ala	Phe	His	Gly	Ser	Gly	Glu		
		195					200					205					
Ala	Asp	Ala	Val	Ile	Asn	Val	Gly	Val	Ser	Gly	Pro	Gly	Val	Val	Lys		
210						215					220						
Ala	Ala	Leu	Glu	Asn	Ser	Asp	Ala	Thr	Thr	Leu	Thr	Glu	Val	Ala	Glu		
225					230					235					240		
Val	Val	Lys	Lys	Thr	Ala	Phe	Lys	Ile	Thr	Arg	Val	Gly	Glu	Leu	Ile		
				245					250					255			
Gly	Arg	Glu	Ala	Ser	Lys	Met	Leu	Asn	Ile	Pro	Phe	Gly	Ile	Leu	Asp		
			260					265					270				
Leu	Ser	Leu	Ala	Pro	Thr	Pro	Ala	Val	Gly	Asp	Ser	Val	Ala	Arg	Ile		
		275					280					285					
Leu	Glu	Glu	Met	Gly	Leu	Ser	Val	Cys	Gly	Thr	His	Gly	Thr	Thr	Ala		
		290				295					300						
Ala	Leu	Ala	Leu	Leu	Asn	Asp	Ala	Val	Lys	Lys	Gly	Gly	Met	Met	Ala		
305					310					315					320		
Ser	Ser	Ala	Val	Gly	Gly	Leu	Ser	Gly	Ala	Phe	Ile	Pro	Val	Ser	Glu		
				325					330					335			
Asp	Glu	Gly	Met	Ile	Ala	Ala	Ala	Glu	Ala	Gly	Val	Leu	Thr	Leu	Asp		
			340					345					350				
Lys	Leu	Glu	Ala	Met	Thr	Ala	Val	Cys	Ser	Val	Gly	Leu	Asp	Met	Ile		
		355					360					365					
Ala	Val	Pro	Gly	Asp	Thr	Pro	Ala	His	Thr	Ile	Ser	Gly	Ile	Ile	Ala		
		370				375					380						
Asp	Glu	Ala	Ala	Ile	Gly	Met	Ile	Asn	Ser	Lys	Thr	Thr	Ala	Val	Arg		
385					390					395					400		
Ile	Ile	Pro	Val	Thr	Gly	Lys	Thr	Val	Gly	Asp	Ser	Val	Glu	Phe	Gly		
				405					410					415			
Gly	Leu	Leu	Gly	Tyr	Ala	Pro	Val	Met	Pro	Val	Lys	Glu	Gly	Ser	Cys		
			420					425					430				

Glu Val Phe Val Asn Arg Gly Gly Arg Ile Pro Ala Pro Val Gln Ser  
435 440 445

Met Lys Asn  
450

<210> 1307  
<211> 522  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 1307  
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gttttgcttg cacgcgtgct tcaagaaccg ctcggttat ccgacagcgc aatcgccgcc 180  
gtcgcactcg ccgcgctggt cgggcatatg tggccggtgt ttttcggatt taagggcggc 240  
aaaggcgttg caacggcatt gggcgtgctt ctggcactct ctctgcaac tgccttggtc 300  
tgcgcggttg ttggccttgat gatggcattc ggcttcaaag tctctccct tgcgcgctg 360  
gtcgccacaa ccgcgcgcgc ccttgccgca ctgttttta tgccgcatac ttcttgatt 420  
ttcgcaaccc tcgcaatcgc catattggtg ttgctccgcc ataagagcaa catcctcaac 480  
ctgattaaag gcaaaagaag caaatcggc gaaaaacgct ga 522

<210> 1308  
<211> 173  
<212> PRT  
<213> Neisseria meningitidis

<400> 1308  
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Val Leu Arg Ser Gly Lys Lys Lys Ala Ala Ala Leu Thr Leu Leu Gly  
20 25 30  
Asp Ala Ala Lys Gly Leu Val Ala Val Leu Leu Ala Arg Val Leu Gln  
35 40 45  
Glu Pro Leu Gly Leu Ser Asp Ser Ala Ile Ala Ala Val Ala Leu Ala  
50 55 60  
Ala Leu Val Gly His Met Trp Pro Val Phe Phe Gly Phe Lys Gly Gly  
65 70 75 80  
Lys Gly Val Ala Thr Ala Leu Gly Val Leu Leu Ala Leu Ser Pro Ala  
85 90 95  
Thr Ala Leu Val Cys Ala Leu Ile Trp Leu Val Met Ala Phe Gly Phe  
100 105 110  
Lys Val Ser Ser Leu Ala Ala Leu Val Ala Thr Thr Ala Ala Pro Leu  
115 120 125  
Ala Ala Leu Phe Phe Met Pro His Thr Ser Trp Ile Phe Ala Thr Leu  
130 135 140

Ala Ile Ala Ile Leu Val Leu Leu Arg His Lys Ser Asn Ile Leu Asn  
 145 150 155 160

Leu Ile Lys Gly Lys Glu Ser Lys Ile Gly Glu Lys Arg  
 165 170

<210> 1309

<211> 522

<212> DNA

<213> *Neisseria meningitidis*

<400> 1309

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 gttttgcttg cacgcgtgct tcaagaaccg ctcggtttat ccgacagcgc aatcgcggcc 180  
 gtcgcactcg ccgcgctggt cgggcatatg tggccggtgt ttttcggatt taaaggcggc 240  
 aaaggcgtag caacggcatt gggcgtagct ctggcactct ctcccgcaac tgccttggtc 300  
 tgcgcgttga tttggcttgt tatggcattc ggcttcaagg tgctctccct tgccgcatta 360  
 accgccacaa tcgccgcacc ggtcgccgca tccttcttta tgccgcacgt ctcgtagggt 420  
 tgggcgaccg tcgccattgc tttgctggtg ttgttccgcc acaaaagtaa tatcgtcaag 480  
 ctgctcgaag gcagagaaag caaatcggc ggcagccgct ga 522

<210> 1310

<211> 173

<212> PRT

<213> *Neisseria meningitidis*

<400> 1310

Met Asp Asp Pro Arg Thr Tyr Gly Ser Gly Asn Pro Gly Ala Thr Asn  
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Val Leu Arg Ser Gly Lys Lys Lys Ala Ala Ala Leu Thr Leu Leu Gly  
 20 25 30

Asp Ala Ala Lys Gly Leu Val Ala Val Leu Leu Ala Arg Val Leu Gln  
 35 40 45

Glu Pro Leu Gly Leu Ser Asp Ser Ala Ile Ala Ala Val Ala Leu Ala  
 50 55 60

Ala Leu Val Gly His Met Trp Pro Val Phe Phe Gly Phe Lys Gly Gly  
 65 70 75 80

Lys Gly Val Ala Thr Ala Leu Gly Val Leu Leu Ala Leu Ser Pro Ala  
 85 90 95

Thr Ala Leu Val Cys Ala Leu Ile Trp Leu Val Met Ala Phe Gly Phe  
 100 105 110

Lys Val Ser Ser Leu Ala Ala Leu Thr Ala Thr Ile Ala Ala Pro Val  
 115 120 125

Ala Ala Ser Phe Phe Met Pro His Val Ser Trp Val Trp Ala Thr Val  
 130 135 140

Ala Ile Ala Leu Leu Val Leu Phe Arg His Lys Ser Asn Ile Val Lys  
 145 150 155 160

Leu Leu Glu Gly Arg Glu Ser Lys Ile Gly Gly Ser Arg  
 165 170

<210> 1311

<211> 522

<212> DNA

<213> Neisseria meningitidis

<400> 1311

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gttttgcttg cagcgtgct tcaagaaccg ctcggtttat ccgacagcgc aatcgcggcc 180
gtcgactcg ccgcgtggt cgggcatatg tggccggtgt ttttcggatt taaaggcggc 240
aaaggcgtgg caacggcatt gggcgtgctt ctggcactct ctcccacaac tgccttggtc 300
tgcgcgttga tttggcttgt gatggcattc ggcttcaagg tgctctccct tgccgcatta 360
accgccacaa tcgcgcgcgc ccttgccgca ctgtttttta tgccgcatac ttcttggtatt 420
ttcgcaaccc tcgcaatcgc catattggtg ttgctccgcc ataagagcaa catcctcaac 480
ctgattaaag gcaaagaaag caaatcggc gaaaaacgct ga 522
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<210> 1312

<211> 173

<212> PRT

<213> Neisseria meningitidis

<400> 1312

Met Asp Asp Pro Arg Thr Tyr Gly Ser Gly Asn Pro Gly Ala Thr Asn  
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Val Leu Arg Ser Gly Lys Lys Lys Ala Ala Ala Leu Thr Leu Leu Gly  
 20 25 30

Asp Ala Ala Lys Gly Leu Val Ala Val Leu Leu Ala Arg Val Leu Gln  
 35 40 45

Glu Pro Leu Gly Leu Ser Asp Ser Ala Ile Ala Ala Val Ala Leu Ala  
 50 55 60

Ala Leu Val Gly His Met Trp Pro Val Phe Phe Gly Phe Lys Gly Gly  
 65 70 75 80

Lys Gly Val Ala Thr Ala Leu Gly Val Leu Leu Ala Leu Ser Pro Thr  
 85 90 95

Thr Ala Leu Val Cys Ala Leu Ile Trp Leu Val Met Ala Phe Gly Phe  
 100 105 110

Lys Val Ser Ser Leu Ala Ala Leu Thr Ala Thr Ile Ala Ala Pro Leu  
 115 120 125

Ala Ala Leu Phe Phe Met Pro His Thr Ser Trp Ile Phe Ala Thr Leu



130

135

140

Ala Ile Ala Ile Leu Val Leu Leu Arg His Lys Ser Asn Ile Leu Asn  
 145 150 155 160

Leu Ile Lys Gly Lys Glu Ser Lys Ile Gly Glu Lys Arg  
 165 170

&lt;210&gt; 1313

&lt;211&gt; 612

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 1313

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 cagccggcgc cgggcgtgaa gccttacaat gccctgcagg ttgccggacg cgatatttac 180  
 atccgtgagg gctgtttacaa ctgccactct caaatgattc gtccgttccg tgcggaaacc 240  
 gagcgttacg gtcattactc tgttgccgga gagtcgggtt acgaccatcc gttccaatgg 300  
 ggttccaaac gtaccgggtcc tgatttggca cgtgtgggcg gccgctattc cgacgaatgg 360  
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 ccgtggcttg cacgcaataa agtcgatgtc gatgcaaccg ttgccaacat gaaggctttg 480  
 cgtaaagtag gtactcctta cagtgatgag gaaattgcga aagcgctga ggctttggca 540  
 aacaaatccg agctggatgc tgtagtcgcc tatctgcaag gattgggtct ggctttgaaa 600  
 aacgtaaggt aa 612

&lt;210&gt; 1314

&lt;211&gt; 203

&lt;212&gt; PRT

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 1314

Met Lys Leu Gln Gln Leu Ala Glu Glu Lys Ile Gly Val Leu Ile Val  
 1 5 10 15  
 Phe Thr Leu Leu Val Val Ser Val Gly Leu Leu Ile Glu Val Val Pro  
 20 25 30  
 Leu Ala Phe Thr Lys Ala Ala Thr Gln Pro Ala Pro Gly Val Lys Pro  
 35 40 45  
 Tyr Asn Ala Leu Gln Val Ala Gly Arg Asp Ile Tyr Ile Arg Glu Gly  
 50 55 60  
 Cys Tyr Asn Cys His Ser Gln Met Ile Arg Pro Phe Arg Ala Glu Thr  
 65 70 75 80  
 Glu Arg Tyr Gly His Tyr Ser Val Ala Gly Glu Ser Val Tyr Asp His  
 85 90 95  
 Pro Phe Gln Trp Gly Ser Lys Arg Thr Gly Pro Asp Leu Ala Arg Val  
 100 105 110  
 Gly Gly Arg Tyr Ser Asp Glu Trp His Arg Ile His Leu Leu Asn Pro  
 115 120 125

Arg Asp Val Val Pro Glu Ser Asn Met Pro Ala Phe Pro Trp Leu Ala  
 130 135 140

Arg Asn Lys Val Asp Val Asp Ala Thr Val Ala Asn Met Lys Ala Leu  
 145 150 155 160

Arg Lys Val Gly Thr Pro Tyr Ser Asp Glu Glu Ile Ala Lys Ala Pro  
 165 170 175

Glu Ala Leu Ala Asn Lys Ser Glu Leu Asp Ala Val Val Ala Tyr Leu  
 180 185 190

Gln Gly Leu Gly Leu Ala Leu Lys Asn Val Arg  
 195 200

<210> 1315

<211> 612

<212> DNA

<213> Neisseria meningitidis

<400> 1315

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 cagccggcgc cgggcgtgaa gccttacaat gccctgcagg ttgcgggacg cgatatttac 180  
 atccgtgagg gctgttacaa ctgccactcg caaatgattc gtccgttccg tgcggaaacc 240  
 gagcgttacg gtcattactc tgttgccgga gagtcggttt acgaccatcc gttccaatgg 300  
 gggtccaaac gtaccggtcc tgatttggca cgtgtgggcg gtcgctattc cgacgaatgg 360  
 caccgtatcc acctgctgaa tccccgtgat gtcgtgcctg agtccaatat gccggcattc 420  
 ccgtggcttg cagcgaataa agtcgatgtc gatgcaaccg ttgccaacat gaaggctttg 480  
 cgtaaagtag gtactcctta cagtgatgag gaaattgcga aagcacctga ggctttggca 540  
 aacaaatccg agctggatgc tgtagtcgcc tatctgcaag gattgggtct ggctttgaaa 600  
 aacgtaaggt aa 612

<210> 1316

<211> 203

<212> PRT

<213> Neisseria meningitidis.

<400> 1316

Met Lys Leu Gln Gln Leu Ala Glu Glu Lys Ile Gly Val Leu Ile Val  
 1 5 10 15

Phe Thr Leu Leu Val Val Ser Val Gly Leu Leu Ile Glu Val Val Pro  
 20 25 30

Leu Ala Phe Thr Lys Ala Ala Thr Gln Pro Ala Pro Gly Val Lys Pro  
 35 40 45

Tyr Asn Ala Leu Gln Val Ala Gly Arg Asp Ile Tyr Ile Arg Glu Gly  
 50 55 60

Cys Tyr Asn Cys His Ser Gln Met Ile Arg Pro Phe Arg Ala Glu Thr  
 65 70 75 80

Glu Arg Tyr Gly His Tyr Ser Val Ala Gly Glu Ser Val Tyr Asp His  
                             85                            90                            95  
 Pro Phe Gln Trp Gly Ser Lys Arg Thr Gly Pro Asp Leu Ala Arg Val  
                             100                            105                            110  
 Gly Gly Arg Tyr Ser Asp Glu Trp His Arg Ile His Leu Leu Asn Pro  
                             115                            120                            125  
 Arg Asp Val Val Pro Glu Ser Asn Met Pro Ala Phe Pro Trp Leu Ala  
                             130                            135                            140  
 Arg Asn Lys Val Asp Val Asp Ala Thr Val Ala Asn Met Lys Ala Leu  
                             145                            150                            155                            160  
 Arg Lys Val Gly Thr Pro Tyr Ser Asp Glu Glu Ile Ala Lys Ala Pro  
                             165                            170                            175  
 Glu Ala Leu Ala Asn Lys Ser Glu Leu Asp Ala Val Val Ala Tyr Leu  
                             180                            185                            190  
 Gln Gly Leu Gly Leu Ala Leu Lys Asn Val Arg  
                             195                            200

<210> 1317  
 <211> 612  
 <212> DNA  
 <213> Neisseria meningitidis

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 gtagtcagtg tcggtctgtt gattgaagtt gtgcccttgg cctttaccaa ggcggcaaca 120  
 cagccggcgt cgggcgtgaa gccttacaat gccctgcagg ttgccggaac cgatatattac 180  
 atccgtgagg gctgttacaa ctgccactcg caaatgattc gtccgttccg tgcggaaacc 240  
 gagcggttac gtcattactc tgttgccgga gagtcggttt acgaccatcc gttccaatgg 300  
 ggttccaaac gtaccgggtcc tgatttgga cgtgtgggcg gtcgctattc cgacgaatgg 360  
 caccgtatcc acctgctgaa tccccgtgat gtcgtgcctg agtccaatat gccggcattc 420  
 ccgtggcttg cagcgaataa agtcgatgtc gatgcaaccg ttgcccaacat gaaggctttg 480  
 cgtaaagtag gtactcctta cagtgatgag gaaattgcga aagcgcctga ggctttggca 540  
 aacaaatccg agctggatgc ttagtcgcc tatctgcaag gattgggtct ggctttgaaa 600  
 aacgtaagggt aa 612

<210> 1318  
 <211> 203  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1318  
 Met Lys Leu Gln Gln Leu Ala Glu Glu Lys Ile Gly Val Leu Ile Val  
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 Phe Thr Leu Leu Val Val Ser Val Gly Leu Leu Ile Glu Val Val Pro  
                             20                            25                            30  
 Leu Ala Phe Thr Lys Ala Ala Thr Gln Pro Ala Ser Gly Val Lys Pro

35	40	45
Tyr Asn Ala Leu Gln Val Ala Gly Arg Asp Ile Tyr Ile Arg Glu Gly		
50	55	60
Cys Tyr Asn Cys His Ser Gln Met Ile Arg Pro Phe Arg Ala Glu Thr		
65	70	75 80
Glu Arg Tyr Gly His Tyr Ser Val Ala Gly Glu Ser Val Tyr Asp His		
	85	90 95
Pro Phe Gln Trp Gly Ser Lys Arg Thr Gly Pro Asp Leu Ala Arg Val		
	100	105 110
Gly Gly Arg Tyr Ser Asp Glu Trp His Arg Ile His Leu Leu Asn Pro		
	115	120 125
Arg Asp Val Val Pro Glu Ser Asn Met Pro Ala Phe Pro Trp Leu Ala		
	130	135 140
Arg Asn Lys Val Asp Val Asp Ala Thr Val Ala Asn Met Lys Ala Leu		
145	150	155 160
Arg Lys Val Gly Thr Pro Tyr Ser Asp Glu Glu Ile Ala Lys Ala Pro		
	165	170 175
Glu Ala Leu Ala Asn Lys Ser Glu Leu Asp Ala Val Val Ala Tyr Leu		
	180	185 190
Gln Gly Leu Gly Leu Ala Leu Lys Asn Val Arg		
195	200	

<210> 1319  
 <211> 1494  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1319

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tccgtgcctc aggcattttc atttattctt gcctgttttc tgaccggtat cgcggtcggc	180
gcgtattttg gcaaacggat ttgccgcagc cgctttgttg atattccctt tatcgggcag	240
tgcttcttgt gggcgggtat tgccgatttt ttgatttttg gtgctgcgtg gttgttgacg	300
ggtttttccg gtttcgtcca ccacgccggt attttcatta ccctgtctgc cgtcgtcagg	360
gggttgattt tcccacttgt acaccatgtg ggtacggatg gcaacaaatc cggacgacag	420
gtttccaatg ttattttcgc caacgttgcc ggcagtgcac tgggtccggt ccttatcggc	480
tttgtgatac ttgatttggt gtccacccaa cagatttacc tgctcatctg tttgatttct	540
gctgctgtcc ctttgttttg tacactgttc caaaaaagtc tccgactgaa tgcagtgtcg	600
gtagcagttt ccctaagtgt cggcaccctc atgttcctac tgccggattc tgtctttcaa	660
aatattgctg gccgtccgga taggttgatt gaaaacaaac acggcattgt tgcggtttac	720
catagagatg gtgataaggt tgtttatggg gcgaatgtat acgacggcgc atacaatacc	780
gatatattca atagtgtcaa cggcatcgaa cgtgcctatc tgctaccctc cctgaagtc	840
ggcatacggc gcattttcgt cgttggattg agtacagggt cgtgggcgcg cgtcttgtct	900
gccattccgg aaatgcagtc gatgatcggt gcggaaatca atccggcata ccgtagcctt	960
atcgcggaag agccgcgaaat cgcaccgctt ttgcaggaca aacgtgttga aattgtattg	1020
gatgacggta ggaaatggct gcgtcgccat cctgatgaaa aattcgacct gattttgatg	1080

aattcgactt ggtactggcg tgcctattcc actaacctgt tgagtgcgga atttttaaaa 1140  
caggtgcaaa gccaccttac ccggatggt attgtaatgt ttaataccac gcacagcccg 1200  
catgcttttg ctaccgctgt acacagtatt ccctatgcat accgctacgg gcatatggta 1260  
gtcggctcgg caaccccggt agttttccct aataaagaac tgctcaagca acgcctttcc 1320  
cggttgattt ggccggaaaag cggcaggcac gtatttgaca gcagcaccgt ggatgctgca 1380  
gcacaaaagg ttgtctctcg tatgctgatt cggatgacgg aaccttcggc tggggcggaa 1440  
gtcattactg acgataatat gattgtagaa tacaataacg gcagagggat ttaa 1494

<210> 1320

<211> 497

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1320

Met	Asp	Met	Val	Asn	Thr	Lys	Pro	Asn	Thr	Ser	Val	Ile	Asn	Met	Leu
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			20					25						30	
Arg	Met	Phe	Ser	Phe	Ala	Ala	Gln	Ser	Val	Pro	Gln	Ala	Phe	Ser	Phe
		35					40					45			
Ile	Leu	Ala	Cys	Phe	Leu	Thr	Gly	Ile	Ala	Val	Gly	Ala	Tyr	Phe	Gly
	50						55				60				
Lys	Arg	Ile	Cys	Arg	Ser	Arg	Phe	Val	Asp	Ile	Pro	Phe	Ile	Gly	Gln
	65					70				75					80
Cys	Phe	Leu	Trp	Ala	Gly	Ile	Ala	Asp	Phe	Leu	Ile	Leu	Gly	Ala	Ala
				85					90						95
Trp	Leu	Leu	Thr	Gly	Phe	Ser	Gly	Phe	Val	His	His	Ala	Gly	Ile	Phe
			100					105					110		
Ile	Thr	Leu	Ser	Ala	Val	Val	Arg	Gly	Leu	Ile	Phe	Pro	Leu	Val	His
			115				120					125			
His	Val	Gly	Thr	Asp	Gly	Asn	Lys	Ser	Gly	Arg	Gln	Val	Ser	Asn	Val
		130					135				140				
Tyr	Phe	Ala	Asn	Val	Ala	Gly	Ser	Ala	Leu	Gly	Pro	Val	Leu	Ile	Gly
	145				150					155					160
Phe	Val	Ile	Leu	Asp	Leu	Leu	Ser	Thr	Gln	Gln	Ile	Tyr	Leu	Leu	Ile
				165					170					175	
Cys	Leu	Ile	Ser	Ala	Ala	Val	Pro	Leu	Phe	Cys	Thr	Leu	Phe	Gln	Lys
				180				185					190		
Ser	Leu	Arg	Leu	Asn	Ala	Val	Ser	Val	Ala	Val	Ser	Leu	Met	Phe	Gly
		195					200					205			
Ile	Leu	Met	Phe	Leu	Leu	Pro	Asp	Ser	Val	Phe	Gln	Asn	Ile	Ala	Gly
	210					215					220				

Arg	Pro	Asp	Arg	Leu	Ile	Glu	Asn	Lys	His	Gly	Ile	Val	Ala	Val	Tyr	225	230	235	240
His	Arg	Asp	Gly	Asp	Lys	Val	Val	Tyr	Gly	Ala	Asn	Val	Tyr	Asp	Gly	245	250	255	
Ala	Tyr	Asn	Thr	Asp	Ile	Phe	Asn	Ser	Val	Asn	Gly	Ile	Glu	Arg	Ala	260	265	270	
Tyr	Leu	Leu	Pro	Ser	Leu	Lys	Ser	Gly	Ile	Arg	Arg	Ile	Phe	Val	Val	275	280	285	
Gly	Leu	Ser	Thr	Gly	Ser	Trp	Ala	Arg	Val	Leu	Ser	Ala	Ile	Pro	Glu	290	295	300	
Met	Gln	Ser	Met	Ile	Val	Ala	Glu	Ile	Asn	Pro	Ala	Tyr	Arg	Ser	Leu	305	310	315	320
Ile	Ala	Asp	Glu	Pro	Gln	Ile	Ala	Pro	Leu	Leu	Gln	Asp	Lys	Arg	Val	325	330	335	
Glu	Ile	Val	Leu	Asp	Asp	Gly	Arg	Lys	Trp	Leu	Arg	Arg	His	Pro	Asp	340	345	350	
Glu	Lys	Phe	Asp	Leu	Ile	Leu	Met	Asn	Ser	Thr	Trp	Tyr	Trp	Arg	Ala	355	360	365	
Tyr	Ser	Thr	Asn	Leu	Leu	Ser	Ala	Glu	Phe	Leu	Lys	Gln	Val	Gln	Ser	370	375	380	
His	Leu	Thr	Pro	Asp	Gly	Ile	Val	Met	Phe	Asn	Thr	Thr	His	Ser	Pro	385	390	395	400
His	Ala	Phe	Ala	Thr	Ala	Val	His	Ser	Ile	Pro	Tyr	Ala	Tyr	Arg	Tyr	405	410	415	
Gly	His	Met	Val	Val	Gly	Ser	Ala	Thr	Pro	Val	Val	Phe	Pro	Asn	Lys	420	425	430	
Glu	Leu	Leu	Lys	Gln	Arg	Leu	Ser	Arg	Leu	Ile	Trp	Pro	Glu	Ser	Gly	435	440	445	
Arg	His	Val	Phe	Asp	Ser	Ser	Thr	Val	Asp	Ala	Ala	Ala	Gln	Lys	Val	450	455	460	
Val	Ser	Arg	Met	Leu	Ile	Arg	Met	Thr	Glu	Pro	Ser	Ala	Gly	Ala	Glu	465	470	475	480
Val	Ile	Thr	Asp	Asp	Asn	Met	Ile	Val	Glu	Tyr	Lys	Tyr	Gly	Arg	Gly	485	490	495	
Ile																			

<211> 1494  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1321  
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 ggcttattga gcttgggtat agaagtcttg tgggtgagga tgttttcgtt cgcagcacag 120  
 tccgtgcctc aggcattttc atttaccctt gcctgttttc tgaccggtat cgcgctcggc 180  
 gcgtattttg gcaaacggat ttgccgcagc cgctttgttg atattccctt tatcgggcag 240  
 tgcttcttgt gggcgggtat tgccgacttt ttgattttgg gtgctgcgtg gttgttgacg 300  
 ggtttttccg gcttcgtcca ccaacgcggg atcttcatta ccctgtctgc cgtcgtcasa 360  
 sggttgattt tcccgtcgtg acaccatgtg ggtacggatg gcaacaaatc cggacgacag 420  
 gtttccaatg tttatttcgc camcgttgcc ggagtgcat tgggtccggg ccttatcggc 480  
 tttgtgatac ttgatttctt gtccacccaa cagatttacc tgctcatctg twtgatttct 540  
 gctgctgtcc ctttgttttg tacactgttc caaaaaagtc tccgactgaa tgcagtgtcg 600  
 gtagcagttt ccctaagtgt cggcatcctc atgttcytac tgccggattc tgtctttcaa 660  
 aatattgctg accgtccgga taggctgatt gaaaacaaac acggcattgt tgcggtttac 720  
 catagagatg gtgataaggt tgtttatggg gcgaatgtat acgacggcgc atacaatacc 780  
 gatgtattca atagtgtcaa cggcatcgaa cgtgcctatc tgctaccctc cctgaagtct 840  
 ggcatacgcc gcattttcgt cgttggactg agtacaggtt cgtgggcgcg cgtcttgtct 900  
 gccattccgg aaatgcagtc gatgatcgtt gcggaaatca atccggcata ccgtagcctt 960  
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 gatgacggta ggaaatggct gcgtcgccat cctgatgaaa aattcgacct gattttgatg 1080  
 aatacgactt ggtactggcg tgcctattcc accaacctgt tgagtgcgga atttttaaaa 1140  
 caggtgcaaa gccaccttac cccggatggg attgtaatgt ttaataccac gcacagcccg 1200  
 catgcttttg ctaccgccgt acacagtatt ccctatgcat accgctatgg gcatatggta 1260  
 gtcggctcgg caaccccggt agttttccct aataaagaac tgctcaagca acgtctctcc 1320  
 cggttgattt ggccgaaaag cggcaggcac gtatttgaca gcagcaccgt ggatgctgca 1380  
 gcacaaaagg ttgtctctcg tatgctgatt cagatgacgg aaccttcggc tggggcggaa 1440  
 gttattaccg acgataatat gattgtagaa tacaaaatcg gcagagggat ttaa 1494

<210> 1322  
 <211> 497  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1322  
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 20 25 30  
 Arg Met Phe Ser Phe Ala Ala Gln Ser Val Pro Gln Ala Phe Ser Phe  
 35 40 45  
 Thr Leu Ala Cys Phe Leu Thr Gly Ile Ala Val Gly Ala Tyr Phe Gly  
 50 55 60  
 Lys Arg Ile Cys Arg Ser Arg Phe Val Asp Ile Pro Phe Ile Gly Gln  
 65 70 75 80  
 Cys Phe Leu Trp Ala Gly Ile Ala Asp Phe Leu Ile Leu Gly Ala Ala  
 85 90 95  
 Trp Leu Leu Thr Gly Phe Ser Gly Phe Val His His Ala Gly Ile Phe

100					105					110					
Ile	Thr	Leu	Ser	Ala	Val	Val	Xaa	Xaa	Leu	Ile	Phe	Pro	Leu	Val	His
		115					120					125			
His	Val	Gly	Thr	Asp	Gly	Asn	Lys	Ser	Gly	Arg	Gln	Val	Ser	Asn	Val
		130				135					140				
Tyr	Phe	Ala	Xaa	Val	Ala	Gly	Ser	Ala	Leu	Gly	Pro	Val	Leu	Ile	Gly
145						150					155				160
Phe	Val	Ile	Leu	Asp	Phe	Leu	Ser	Thr	Gln	Gln	Ile	Tyr	Leu	Leu	Ile
				165					170						175
Cys	Xaa	Ile	Ser	Ala	Ala	Val	Pro	Leu	Phe	Cys	Thr	Leu	Phe	Gln	Lys
			180					185					190		
Ser	Leu	Arg	Leu	Asn	Ala	Val	Ser	Val	Ala	Val	Ser	Leu	Met	Phe	Gly
		195					200					205			
Ile	Leu	Met	Phe	Leu	Leu	Pro	Asp	Ser	Val	Phe	Gln	Asn	Ile	Ala	Asp
		210				215					220				
Arg	Pro	Asp	Arg	Leu	Ile	Glu	Asn	Lys	His	Gly	Ile	Val	Ala	Val	Tyr
225						230					235				240
His	Arg	Asp	Gly	Asp	Lys	Val	Val	Tyr	Gly	Ala	Asn	Val	Tyr	Asp	Gly
				245					250					255	
Ala	Tyr	Asn	Thr	Asp	Val	Phe	Asn	Ser	Val	Asn	Gly	Ile	Glu	Arg	Ala
			260					265					270		
Tyr	Leu	Leu	Pro	Ser	Leu	Lys	Ser	Gly	Ile	Arg	Arg	Ile	Phe	Val	Val
		275				280						285			
Gly	Leu	Ser	Thr	Gly	Ser	Trp	Ala	Arg	Val	Leu	Ser	Ala	Ile	Pro	Glu
		290				295					300				
Met	Gln	Ser	Met	Ile	Val	Ala	Glu	Ile	Asn	Pro	Ala	Tyr	Arg	Ser	Leu
305						310					315				320
Ile	Ala	Asp	Glu	Pro	Gln	Ile	Ala	Pro	Leu	Leu	Gln	Asp	Lys	Arg	Val
				325					330					335	
Glu	Ile	Val	Leu	Asp	Asp	Gly	Arg	Lys	Trp	Leu	Arg	Arg	His	Pro	Asp
			340					345					350		
Glu	Lys	Phe	Asp	Leu	Ile	Leu	Met	Asn	Thr	Thr	Trp	Tyr	Trp	Arg	Ala
		355					360					365			
Tyr	Ser	Thr	Asn	Leu	Leu	Ser	Ala	Glu	Phe	Leu	Lys	Gln	Val	Gln	Ser
		370				375					380				
His	Leu	Thr	Pro	Asp	Gly	Ile	Val	Met	Phe	Asn	Thr	Thr	His	Ser	Pro
385						390					395				400
His	Ala	Phe	Ala	Thr	Ala	Val	His	Ser	Ile	Pro	Tyr	Ala	Tyr	Arg	Tyr



405	410	415
Gly His Met Val Val Gly Ser Ala Thr Pro Val Val Phe Pro Asn Lys		
420	425	430
Glu Leu Leu Lys Gln Arg Leu Ser Arg Leu Ile Trp Pro Glu Ser Gly		
435	440	445
Arg His Val Phe Asp Ser Ser Thr Val Asp Ala Ala Ala Gln Lys Val		
450	455	460
Val Ser Arg Met Leu Ile Gln Met Thr Glu Pro Ser Ala Gly Ala Glu		
465	470	475
Val Ile Thr Asp Asp Asn Met Ile Val Glu Tyr Lys Tyr Gly Arg Gly		
485	490	495
Ile		

<210> 1323  
 <211> 1494  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1323  
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 tccgtgcctc aggcattttc atttactctt gcctgttttc tgaccggtat cgcgcgcggc 180  
 gcgtattttg gcaaacggat ttgccgcagc cgctttgttg atattccctt tatcgggcag 240  
 tgcttcttgt gggcgggtat tgccgacttt ttgatttttg gtgctgcgtg gttgttgacg 300  
 gggttttccg gcttcgtcca ccacgccggt atcttcatta ccctgtctgc cgtcgtcaga 360  
 ggggttgattt tcccgctcgt acaccatgtg ggtacggatg gcaacaaatc cggacgacag 420  
 gtttccaatg tttatttcgc caacgttgcc ggcatgcat tgggtccggt ccttatcggc 480  
 tttgtgatac ttgatttctt gtccacccaa cagatttacc tgctcatctg tttgatttct 540  
 gctgctgtcc ctttgttttg tacactgttc caaaaaagtc tccgactgaa tgcagtgtcg 600  
 gtagcagttt ccctaattgt cggcatcctc atgttcctac tgccggattc tgtctttcaa 660  
 aatattgctg accgtccgga taggctgatt gaaaacaaac acggcattgt tgcgggttac 720  
 catagagatg gtgataaggt tgtttatggg gcgaatgtat acgacggcgc atacaatacc 780

gatgtattca atagtgtcaa cggcatcgaa cgtgcctatc tgctaccctc cctgaagtct 840  
 ggcatacgcc gcattttcgt cgttggtattg agtacagggt cgtgggcgcg cgtcttgtct 900  
 gccattccgg aaatgcagtc gatgatcgtt gcggaaatca atccggcata ccgtagcctt 960  
 atcgcggacg agccgcaa at cgcctcgtt ttgcaggaca aacgtgttga aattgtattg 1020  
 gatgacggta ggaaatggct gcgtcgccat cctgatgaaa aattcgacct gattttgatg 1080  
 aatacgactt ggtactggcg tgcctatttc accaacctgt tgagtgcgga atttttaaaa 1140  
 caggtgcaaa gccaccttac cccggatggg attgtaatgt ttaataccac gcacagcccg 1200  
 catgcttttg ctaccgcgt acacagtatt ccctatgcat accgctatgg gcatatggta 1260  
 gtgcgctcgg caaccccggt agttttccct aataaagaac tgctcaagca acgtctctcc 1320  
 cggttgattt ggccggaaag cggcaggcac gtatttgaca gcagcaccgt ggatgtgca 1380  
 gcacaaaagg ttgtctctcg tatgttgatt cagatgacgg aaccttcggc tgggtcggaa 1440  
 gtcattaccg acgataatat gattgtagaa taaaatacgc gcagagggat ttaa 1494

<210> 1324

<211> 497  
<212> PRT  
<213> Neisseria meningitidis

<400> 1324

Met	Asp	Ile	Val	Asn	Thr	Lys	Pro	Asn	Thr	Ser	Leu	Ile	Tyr	Met	Leu
1				5					10					15	
Ser	Phe	Leu	Ser	Gly	Leu	Leu	Ser	Leu	Gly	Ile	Glu	Val	Leu	Trp	Val
			20					25					30		
Arg	Met	Phe	Ser	Phe	Ala	Ala	Gln	Ser	Val	Pro	Gln	Ala	Phe	Ser	Phe
		35					40					45			
Thr	Leu	Ala	Cys	Phe	Leu	Thr	Gly	Ile	Ala	Val	Gly	Ala	Tyr	Phe	Gly
	50					55					60				
Lys	Arg	Ile	Cys	Arg	Ser	Arg	Phe	Val	Asp	Ile	Pro	Phe	Ile	Gly	Gln
65					70					75					80
Cys	Phe	Leu	Trp	Ala	Gly	Ile	Ala	Asp	Phe	Leu	Ile	Leu	Gly	Ala	Ala
			85						90					95	
Trp	Leu	Leu	Thr	Gly	Phe	Ser	Gly	Phe	Val	His	His	Ala	Gly	Ile	Phe
			100					105					110		
Ile	Thr	Leu	Ser	Ala	Val	Val	Arg	Gly	Leu	Ile	Phe	Pro	Leu	Val	His
		115					120					125			
His	Val	Gly	Thr	Asp	Gly	Asn	Lys	Ser	Gly	Arg	Gln	Val	Ser	Asn	Val
	130					135					140				
Tyr	Phe	Ala	Asn	Val	Ala	Gly	Ser	Ala	Leu	Gly	Pro	Val	Leu	Ile	Gly
145					150					155					160
Phe	Val	Ile	Leu	Asp	Phe	Leu	Ser	Thr	Gln	Gln	Ile	Tyr	Leu	Leu	Ile
			165						170					175	
Cys	Leu	Ile	Ser	Ala	Ala	Val	Pro	Leu	Phe	Cys	Thr	Leu	Phe	Gln	Lys
			180					185					190		
Ser	Leu	Arg	Leu	Asn	Ala	Val	Ser	Val	Ala	Val	Ser	Leu	Met	Phe	Gly
		195					200					205			
Ile	Leu	Met	Phe	Leu	Leu	Pro	Asp	Ser	Val	Phe	Gln	Asn	Ile	Ala	Asp
	210					215					220				
Arg	Pro	Asp	Arg	Leu	Ile	Glu	Asn	Lys	His	Gly	Ile	Val	Ala	Val	Tyr
225				230						235					240
His	Arg	Asp	Gly	Asp	Lys	Val	Val	Tyr	Gly	Ala	Asn	Val	Tyr	Asp	Gly
			245						250					255	
Ala	Tyr	Asn	Thr	Asp	Val	Phe	Asn	Ser	Val	Asn	Gly	Ile	Glu	Arg	Ala
			260					265					270		
Tyr	Leu	Leu	Pro	Ser	Leu	Lys	Ser	Gly	Ile	Arg	Arg	Ile	Phe	Val	Val

275					280					285					
Gly	Leu	Ser	Thr	Gly	Ser	Trp	Ala	Arg	Val	Leu	Ser	Ala	Ile	Pro	Glu
290						295					300				
Met	Gln	Ser	Met	Ile	Val	Ala	Glu	Ile	Asn	Pro	Ala	Tyr	Arg	Ser	Leu
305				310					315						320
Ile	Ala	Asp	Glu	Pro	Gln	Ile	Ala	Pro	Leu	Leu	Gln	Asp	Lys	Arg	Val
			325						330					335	
Glu	Ile	Val	Leu	Asp	Asp	Gly	Arg	Lys	Trp	Leu	Arg	Arg	His	Pro	Asp
			340					345					350		
Glu	Lys	Phe	Asp	Leu	Ile	Leu	Met	Asn	Thr	Thr	Trp	Tyr	Trp	Arg	Ala
		355					360					365			
Tyr	Ser	Thr	Asn	Leu	Leu	Ser	Ala	Glu	Phe	Leu	Lys	Gln	Val	Gln	Ser
		370					375					380			
His	Leu	Thr	Pro	Asp	Gly	Ile	Val	Met	Phe	Asn	Thr	Thr	His	Ser	Pro
385				390					395						400
His	Ala	Phe	Ala	Thr	Ala	Val	His	Ser	Ile	Pro	Tyr	Ala	Tyr	Arg	Tyr
			405						410					415	
Gly	His	Met	Val	Val	Gly	Ser	Ala	Thr	Pro	Val	Val	Phe	Pro	Asn	Lys
			420					425					430		
Glu	Leu	Leu	Lys	Gln	Arg	Leu	Ser	Arg	Leu	Ile	Trp	Pro	Glu	Ser	Gly
			435				440					445			
Arg	His	Val	Phe	Asp	Ser	Ser	Thr	Val	Asp	Ala	Ala	Ala	Gln	Lys	Val
			450				455					460			
Val	Ser	Arg	Met	Leu	Ile	Gln	Met	Thr	Glu	Pro	Ser	Ala	Gly	Ala	Glu
465				470					475						480
Val	Ile	Thr	Asp	Asp	Asn	Met	Ile	Val	Glu	Tyr	Lys	Tyr	Gly	Arg	Gly
			485						490					495	

Ile

<210> 1325

<211> 963

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1325

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atgcgggcac ggctgctgat acctattctt ttttcagttt ttattttatc cgcctgcggg 60
aactgacag gtattccatc gcatggcgga ggcaaacgct tcgcggtcga acaagaactt 120
gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
aaagttgcat tgtacattgc aactatgggc gaccaagggt caggcagttt gacagggggg 240
cgctactcca ttgatgcact gattcgcggc gaatacataa acagccctgc cgtccgcacc 300

```

```

gattacacct atccgcgtta cgaaccacc gctgaaacaa catcaggcgg tttgacgggt 360
ttaaccactt ctttatctac acttaatgcc cctgcactct cgcgcaccca atcagacgggt 420
agcggaagta ggagcagtct gggcttaaat attggcgga tgggggatta tcgaaatgaa 480
accttgacga ccaaccgcg cgacactgcc tttctttccc acttggtgca gaccgtattt 540
ttcctgcgcg gcatagacgt tgtttctcct gccaatgccg atacagatgt gtttattaac 600
atcgacgtat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660
ctgaaagccc aaacaaaact ggaatatttc gcagtagaca gaaccaataa aaaattgctc 720
atcaaaccce aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780
gggccgtata aagtaagcaa aggaatcaaa ccgacggaag gattgatggg cgatttctcc 840
gatatccaac catacggcaa tcatacgggt aactccgcc catccgtaga ggctgataac 900
agtcgatgagg ggtatggata cagcgatgaa gcagtgcgac aacatagaca agggcaacct 960
tga

```

<210> 1326

<211> 320

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1326

```

Met Arg Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
  1             5             10            15

```

```

Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
          20             25            30

```

```

Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
      35             40            45

```

```

Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
      50             55            60

```

```

Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
      65             70            75            80

```

```

Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro
          85             90            95

```

```

Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
      100            105            110

```

```

Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
      115            120            125

```

```

Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Arg
      130            135            140

```

```

Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
      145            150            155            160

```

```

Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val
          165            170            175

```

```

Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn
      180            185            190

```

```

Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg

```

195	200	205
Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln		
210	215	220
Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu		
225	230	235 240
Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr		
	245	250 255
Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr		
	260	265 270
Glu Gly Leu Met Val Asp Phe Ser Asp Ile Gln Pro Tyr Gly Asn His		
	275	280 285
Thr Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly		
	290	295 300
Tyr Gly Tyr Ser Asp Glu Ala Val Arg Gln His Arg Gln Gly Gln Pro		
305	310	315 320

<210> 1327  
 <211> 963  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1327  
 atgcaagcac ggctgctgat acctattctt ttttcagttt ttattttatc cgcctgcggg 60  
 aactgacag gtattocac gcacggcgga ggtaaacgct ttgcggtcga acaagaactt 120  
 gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180  
 aaagtgtcat tgtacattgc cactatgggc gaccaagggt caggcagttt gacagggggg 240  
 cgctactcca ttgatgcact gattcgtggc gaatacataa acagccctgc cgtccgtacc 300  
 gattacacct atccacgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacaggt 360  
 ttaaccactt ctttatctac acttaatgcc cctgcactct ctgcaccca atcagacggg 420  
 agcggaaagta aaagcagtct gggcttaaat attggcggga tgggggatta tcgaaatgaa 480  
 acctgacga ctaacccgcg cgacactgcc tttctttccc acttggtaca gaccgtattt 540  
 ttcctgcgcg gcatagacgt tgtttctcct gccaatgccg atacagatgt gtttattaac 600  
 atcgacgtat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660  
 ctgaaagccc aaacaaaact ggaatatttc gcagtagaca gaaccaataa aaaattgctc 720  
 atcaaaccaa aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780  
 gggccgtata aagtaagcaa aggaattaaa ccgacggaag gattaatggt cgatttctcc 840  
 gatatccgac catacggcaa tcatacgggt aactccgccc catccgtaga ggctgataac 900  
 agtcatgagg ggtatggata cagcgatgaa gtagtgcgac aacatagaca aggacaacct 960  
 tga 963

<210> 1328  
 <211> 320  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1328

Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu  
1 5 10 15

Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys  
20 25 30

Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala  
35 40 45

Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu  
50 55 60

Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly  
65 70 75 80

Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro  
85 90 95

Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu  
100 105 110

Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu  
115 120 125

Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys  
130 135 140

Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu  
145 150 155 160

Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val  
165 170 175

Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn  
180 185 190

Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg  
195 200 205

Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln  
210 215 220

Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu  
225 230 235 240

Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr  
245 250 255

Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr  
260 265 270

Glu Gly Leu Met Val Asp Phe Ser Asp Ile Arg Pro Tyr Gly Asn His  
275 280 285

Thr Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly

290

295

300

Tyr Gly Tyr Ser Asp Glu Val Val Arg Gln His Arg Gln Gly Gln Pro  
 305 310 315 320

&lt;210&gt; 1329

&lt;211&gt; 963

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1329

```

atgcaagcac ggctgctgat acctattctt ttttcagttt ttattttatc cgcctgcggg 60
acactgacag gtattccatc gcatggcgga ggtaaagcgt tcgcggtcga acaagaactt 120
gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
aaagttgcat tgtacattgc aactatgggc gaccaagggt caggcagttt gacagggggg 240
cgctaactcca ttgatgcact gattcgtggc gaatacataa acagccctgc cgtccgtacc 300
gattacacct atccacgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacaggt 360
ttaaccactt ctttatctac acttaatgcc cctgcactct cgcgcaccca atcagacggg 420
agcgggaagta aaagcagtct gggcttaaat attggcggga tgggggatta tcgaaatgaa 480
accttgacga ctaaccgcg cgacactgcc tttctttccc acttggtaca gaccgtattt 540
ttcctgcgcg gcatagacgt tgtttctcct gccaatgccg atacggatgt gtttattaac 600
atcgacgtat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660
ctgaaagccc aaacaaaact ggaatatctt gcagtagaca gaaccaataa aaaattgctc 720
atcaaaccba aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780
ggaccgtata aagtaagcaa aggaattaaa ccgacagaag gattaatggt cgatttctcc 840
gatatccaac catacgcaa tcatatgggt aactctgccc catccgtaga ggctgataac 900
agtcatgagg ggtatggata cagcgatgaa gcagtgcgac gacatagaca agggcaacct 963
tga

```

&lt;210&gt; 1330

&lt;211&gt; 320

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 1330

```

Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
  1 5 10 15
Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
  20 25 30
Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
  35 40 45
Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
  50 55 60
Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
  65 70 75 80
Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro
  85 90 95

```

Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu  
 100 105 110  
 Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu  
 115 120 125  
 Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys  
 130 135 140  
 Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu  
 145 150 155 160  
 Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val  
 165 170 175  
 Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn  
 180 185 190  
 Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg  
 195 200 205  
 Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln  
 210 215 220  
 Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu  
 225 230 235 240  
 Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr  
 245 250 255  
 Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr  
 260 265 270  
 Glu Gly Leu Met Val Asp Phe Ser Asp Ile Gln Pro Tyr Gly Asn His  
 275 280 285  
 Met Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly  
 290 295 300  
 Tyr Gly Tyr Ser Asp Glu Ala Val Arg Arg His Arg Gln Gly Gln Pro  
 305 310 315 320

<210> 1331

<211> 1677

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1331

atggtcggac ggaccttgac cgcagatacc gacatatttg ttctgcttgc ggcaggcgga 60  
 gatggcaaga tgcagcatca ctttgacggc agggttgcgt tcgtcaaacg attcggacac 120  
 caagccgctg tctcggtcga ggccgagggt cagctgggtc atgtcggtcg agccgatgga 180  
 gaagccgtcg aagtattgca ggaattgttc cgccaatacc gcgttgctcg gcagctcgca 240



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catcataatc aggcgcagge cgtttttgcc gcgttccaag ccgtttttcct tcaatgcctt 300
aaccactgct tcggcttcgc ccaaagtgcg gacgaacgga atcatgattt cgacgttggt 360
cagacccatt tcgtcacgaa cgcgtttcaa ggctttgcat tccaaggcga aacagtcttt 420
gaagctctcg gcaacataac gcgcgcgacc acggaagccc aacatcgggt tttcttcgat 480
cggttcgtat acgctgcgcg cgaccaggtt ggcgatttcg ttggatttga agtcggacat 540
acggacgatg gttttacgcg gataaaccga tgcggcaagc gttgccacgc cttcggcgat 600
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tttcagttcg tcgtcttggt tgtcaaattc caacaaggct ttcgggtgga tgccgatttg 720
gcggttgatg ataaattcca tacgcgccaa gccgatgcct tcgctgggca gattggcgaa 780
gctgaatgcg agttcgggat tgccgacgtt catcatgact ttgacgggtg cttttggcat 840
attgtccaag gcgacatcgg taatttgtac gtccagcagg ccggcataga taaagccggg 900
atcgccttcg gcacaggata cggtaacttc ctgaccgttt tccaagagtt cggtcgcatt 960
gccgcagccg acgacggcag gaatacccag ttcgcgcgcg atgatggcgg cgtggcagg 1020
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atcggtcgat tcggtaacca gtacgtcgcc ggcttcgacg gaatccatct cgggaagcatc 1140
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acccatggtc ttgcgcagga tggcgggttt gcctgctttg agcgtgggtt tgaacacata 1560
aaattcgtcc gggttgaccg cgccttgtac gacgttttcg ccagaccgt aagaggaggt 1620
aacaagacg acttggttgt agccggattc ggtgtcgagg gtgaacatca cacctga 1677

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<210> 1332

<211> 558

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1332

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Met Val Gly Arg Thr Leu Thr Ala Asp Thr Asp Ile Phe Val Leu Leu
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Ala Ala Gly Gly Asp Gly Lys Met Gln His His Phe Asp Gly Arg Val
      20                      25                      30

Ala Phe Val Lys Arg Phe Gly His Gln Ala Ala Val Ser Val Glu Ala
      35                      40                      45

Glu Gly Gln Leu Gly His Val Val Arg Ala Asp Gly Glu Ala Val Glu
      50                      55                      60

Val Leu Gln Glu Leu Phe Arg Gln Tyr Arg Val Ala Arg Gln Leu Ala
      65                      70                      75                      80

His His Asn Gln Ala Gln Ala Val Phe Ala Ala Phe Gln Ala Val Phe
      85                      90                      95

Phe Gln Cys Leu Asn His Cys Phe Gly Phe Ala Gln Ser Ala Asp Glu
      100                     105                     110

Arg Asn His Asp Phe Asp Val Gly Gln Thr His Phe Val Thr Asn Ala
      115                     120                     125

```

Phe Gln Gly Phe Ala Phe Gln Gly Glu Thr Val Phe Glu Ala Leu Gly  
 130 135 140  
 Asn Ile Thr Arg Arg Thr Thr Glu Ala Gln His Arg Val Phe Phe Met  
 145 150 155 160  
 Arg Phe Val Tyr Ala Ala Ala Asp Gln Val Gly Val Phe Val Gly Phe  
 165 170 175  
 Glu Val Gly His Thr Asp Asp Gly Phe Thr Arg Ile Asn Arg Cys Gly  
 180 185 190  
 Lys Arg Cys His Ala Phe Gly Asp Phe Ile Asp Val Glu Val Asp Arg  
 195 200 205  
 Gly Cys Val Thr Gly Asp Ala Ala Asp Asn Phe Arg Phe Gln Phe Val  
 210 215 220  
 Val Leu Phe Val Lys Phe Gln Gln Gly Phe Arg Val Asp Ala Asp Leu  
 225 230 235 240  
 Ala Val Asp Asp Lys Phe His Thr Arg Gln Ala Asp Ala Phe Ala Gly  
 245 250 255  
 Gln Ile Gly Glu Ala Glu Cys Glu Phe Gly Ile Ala Asp Val His His  
 260 265 270  
 Asp Phe Asp Gly Cys Phe Trp His Ile Val Gln Gly Asp Ile Gly Asn  
 275 280 285  
 Leu Tyr Val Gln Gln Ala Gly Ile Asp Lys Ala Gly Ile Ala Phe Gly  
 290 295 300  
 Thr Gly Tyr Gly Asn Phe Leu Thr Val Phe Gln Glu Phe Gly Arg Ile  
 305 310 315 320  
 Ala Ala Ala Asp Asp Gly Arg Asn Thr Gln Phe Ala Arg Asp Asp Gly  
 325 330 335  
 Gly Val Ala Gly Ala Ser Ala Ala Val Gly His Asp Gly Gly Ser Thr  
 340 345 350  
 Phe His His Gly Phe Pro Ile Arg Ile Gly His Val Gly Asn Gln Tyr  
 355 360 365  
 Val Ala Gly Phe Asp Gly Ile His Leu Gly Ser Ile Phe Asn Gln Ala  
 370 375 380  
 His Leu Ala Leu Thr Asp Phe Leu Thr Asp Gly Thr Thr Phe Ala Gln  
 385 390 395 400  
 Asp Gly Phe Phe Ala Val Asp Gly Val Ala Ala Gln Val Ala Ala Ala  
 405 410 415  
 Phe Phe Leu Gly Phe Asp Gly Phe Gly Ala Gly Leu Gln Asp Val Glu  
 420 425 430

Phe Ala Val Gln Ala Val Ala Ser Pro Phe Asp Ile His Arg Ala Ala  
 435 440 445

Val Val Phe Phe Asp Gly Gln Arg Val Val Cys Gln Leu Gly Asp Phe  
 450 455 460

Phe Val Gly Asn Gly Glu Ala Val Ala Val Phe Phe Gly Asp Phe Asp  
 465 470 475 480

Val Gly Tyr Arg Phe Ala Gly Phe Gly Phe Val Gly Glu Asn His Phe  
 485 490 495

Asp Val Phe Arg Thr His Gly Leu Ala Gln Asp Gly Gly Phe Ala Cys  
 500 505 510

Phe Glu Arg Gly Phe Glu His Ile Lys Phe Val Arg Val Asp Arg Ala  
 515 520 525

Leu Tyr Asp Val Phe Ala Gln Thr Val Arg Gly Gly Asn Lys Asp Asp  
 530 535 540

Leu Val Val Ala Gly Phe Gly Val Glu Gly Glu His His Thr  
 545 550 555

<210> 1333

<211> 1677

<212> DNA

<213> Neisseria meningitidis

<400> 1333

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atggtcggac sggccttgac cgcagatgcc gacatatttg ttctgcttgc ggcaggcgga 60
gatggcaagg tgcagcatca ctttgacggc agggttgctg tcgtcaaacg attcggatac 120
caagccgctg tcgcggctga gaccgagggt cagtgggtc atgtcgcttc agccgatgga 180
gaagccgtcg aagtattgca ggaattgttc cgccaatacc gcgttgctcg gcagctcgca 240
catcataatc aggcgcaggc cgtttttgcc gcgttccaag ccgttttctt tcagggtctt 300
gacaacggmt tcggtctcgc ccaaagtgcg gacgaacgga atcatgattt caacgttgy 360
caacccatt tcatcgcgga cgcgtttcaa ggctttgcat tccaaggcga aacagtctt 420
gaagtgtcg gcgacataac gcgcgcacc acggaagccc aacatcggtt tttcttcag 480
cgttcgtat acgttgccgc cgaccaggtt gccgtattcg ttggatttga agtcggacat 540
acggacgatg gttttacgcg gataaacgga tgcggccaat gtcgccacgc cttcggcgat 600
tttatcgacg tagaagtcca caggggacgc gtaaccggcg atacggcggg taatttccgc 660
ttttaattcg tcgtcttggt tgtcaaattc caacaargct ttgggggtgga taccgatttg 720
gcggttgatg ataaattcca tacgcgcca gccgatgcct tcgtgggca ggttggcgaa 780
gctgaatgcg agttcgggat tgccgacgtt catcatgact tttacagggt ctttaggcat 840
attgtctaag gcgacatcgg taatctgtac gtccaacaga ccggcataga taaagccggt 900
atcgccctcg gcacaggata cggtaacttc ttgaccgttt ttcagcaatt cggttgcatt 960
gccgcagccg acaacggcag gaatgcccaa ttcacgcgcg atgatggcgg cgtggcagg 1020
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atcggtcatg tcggtaacga gtacgtcgcc ggcttcgacg gaatccatct cggaagcatc 1140
ttaatcagg cgcaccttgc cctgaccgac tttctgaccg atggcgcggc cttcgcataa 1200
tacggttttg tcgcggttga tggcgaagcg gcgcagggtt cggttgccct cttcttggga 1260
ttttacggtt tcgggacggg cttgcaggat gtagagtttg ccgtccaagc cgtcgcgtcc 1320
ccattcgata tccatcgggc ggccgtagtg tttttcgatg gtcagtgcgt aatgcgccaa 1380
ctcagtaatt tcttcgtcgg taatggagaa gcggttgccg tcttcctcgg ggacatcgac 1440
gttggttacg gatttaccgg cttctgcttt gtcggtaaaa atcattttga tgtgttttga 1500
acccatggtt ttacgcagga tggcgggctt gcccgtyttg agcgtgggtt tgaacacatr 1560

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aaattcggtcc ggggttgaccg caccttggtac gacgtttttcg cccagaccgt aagaggaggt 1620  
aacaagacg acytgatcgt akccggattc ggtgtcgagg gtgaacatca cacctga 1677

<210> 1334  
<211> 558  
<212> PRT  
<213> Neisseria meningitidis

<400> 1334  
Met Val Gly Xaa Ala Leu Thr Ala Asp Ala Asp Ile Phe Val Leu Leu  
1 5 10 15

Ala Ala Gly Gly Asp Gly Lys Val Gln His His Phe Asp Gly Arg Val  
20 25 30

Ala Phe Val Lys Arg Phe Gly Tyr Gln Ala Ala Val Ala Val Glu Thr  
35 40 45

Glu Gly Gln Leu Gly His Val Val Arg Ala Asp Gly Glu Ala Val Glu  
50 55 60

Val Leu Gln Glu Leu Phe Arg Gln Tyr Arg Val Ala Arg Gln Leu Ala  
65 70 75 80

His His Asn Gln Ala Gln Ala Val Phe Ala Ala Phe Gln Ala Val Phe  
85 90 95

Phe Gln Gly Phe Asp Asn Gly Phe Gly Phe Ala Gln Ser Ala Asp Glu  
100 105 110

Arg Asn His Asp Phe Asn Val Gly Gln Pro His Phe Ile Ala Asp Ala  
115 120 125

Phe Gln Gly Phe Ala Phe Gln Gly Glu Thr Val Phe Glu Val Val Gly  
130 135 140

Asp Ile Thr Arg Arg Thr Thr Glu Ala Gln His Arg Val Phe Phe Met  
145 150 155 160

Arg Phe Val Tyr Val Ala Ala Asp Gln Val Gly Val Phe Val Gly Phe  
165 170 175

Glu Val Gly His Thr Asp Asp Gly Phe Thr Arg Ile Asn Arg Cys Gly  
180 185 190

Gln Cys Arg His Ala Phe Gly Asp Phe Ile Asp Val Glu Val Asp Arg  
195 200 205

Gly Arg Val Thr Gly Asp Thr Ala Gly Asn Phe Arg Phe Xaa Phe Val  
210 215 220

Val Leu Phe Val Lys Phe Gln Gln Xaa Phe Gly Val Asp Thr Asp Leu  
225 230 235 240

Ala Val Asp Asp Lys Phe His Thr Arg Gln Ala Asp Ala Phe Ala Gly

[illegible]

Leu Ile Val Xaa Gly Phe Gly Val Glu Gly Glu His His Thr  
 545 550 555

<210> 1335  
 <211> 1671  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1335  
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 gatggcaagg tgcagcatca ctttgacggc agggttgcgt tcgtcaaacg attcggatac 120  
 caagccgctg tcgcggtcga gaccgagggt cagttgggtc atgtcgttcg agccgatgga 180  
 gaagccgctg aagtattgca ggaattgttc cgccaatacc gcgttgctcg gcagctcgca 240  
 catcataatc aggcgcaggc cgtttttgcc gcgttccaag ccgttttctt tcagggcttt 300  
 gacaacggct tcggcttcgc ccaaagtgcg gacgaacgga atcatgattt caacgttggg 360  
 caacccccatt tcatcgcgga cgcgtttcaa ggctttgcat tccaaggcga aacagtcttt 420  
 gaagttgtcg gcgacataac gcgcgcgacc acggaagccc aacatcgggt tttcttcatg 480  
 cggttcgtat acgttgccgc cgaccagggt ggcttattcg ttggatttga agtcggacat 540  
 acggacgatg gttttacgcg gataaaccga tgcggccaat gtcgccacgc cttcggcgat 600  
 tttatcgacg tagaagtcca caggggacgc gtaacggcg atacggcggg taatttccgc 660  
 ttttaattcg tcgtcttggt tgtcaaattc caacaaggct ttgggggtgga taccgatttg 720  
 gcggttgatg ataaattcca tacgcgccaa gccgatgcct tcgctgggca ggttggcgaa 780  
 gctgaatgcg agttcgggat tgccgacgtt catcatgact tttacagggt ctttaggcat 840  
 gttgtccaaa gcaacatcgg taatttgtac gtccagcagg ccggagtaga tgaagccggt 900  
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 gccgcagccg acaacggcag gaatacccag ttccgcgcgc atgatggcgg cgtggcagg 1020  
 acgtccgccc ctggttggtca cgatggcgga agcgcgtttc atcaccggtt cccaatctgg 1080  
 gtccggtcatg tcggttaacca gtacgtcgcc ggcttcgacg gaatccatct cggaagcatc 1140  
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 gacgggtttt tcgcggtga tagaaaagcg gcgcagggtt cggtgcctt cttcctggga 1260  
 tttgacgggt tcgggacggg cttgcaggat gtagagtttg ccgtccaagc cgtcgcgtcc 1320  
 ccattcgatg tccatcgggc ggccgtagtg ttttccgatg gtcagtgcgt aatgcgccaa 1380  
 ctccggtgatt tcttcgtcgg taatggagaa gcggttgccg tcttcttcgg ggacatcgac 1440  
 gttggttacc gatttgccgg cttctgcttt gtcggtaaaa atcattttga tgtgttttga 1500  
 gcccatgggt ttgcgcagga tggcagggtt gcctgctttc agcgtgggtt tgaacacata 1560  
 gaattcgtcg ggattgactg cgccttgtac gacgttttcg ccagaccgt aggatgaagt 1620  
 gacaaagacg acttggtcgt aaccggattc ggtatcgagg gtgaacatca c 1671

<210> 1336  
 <211> 554  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1336  
 Met Val Gly Arg Ala Leu Thr Ala Asp Ala Asp Ile Phe Val Leu Leu  
 1 5 10 15  
 Ala Ala Gly Gly Asp Gly Lys Val Gln His His Phe Asp Gly Arg Val  
 20 25 30  
 Ala Phe Val Lys Arg Phe Gly Tyr Gln Ala Ala Val Ala Val Glu Thr  
 35 40 45  
 Glu Gly Gln Leu Gly His Val Val Arg Ala Asp Gly Glu Ala Val Glu  
 50 55 60

Val Leu Gln Glu Leu Phe Arg Gln Tyr Arg Val Ala Arg Gln Leu Ala  
65 70 75 80  
His His Asn Gln Ala Gln Ala Val Phe Ala Ala Phe Gln Ala Val Phe  
85 90 95  
Phe Gln Gly Phe Asp Asn Gly Phe Gly Phe Ala Gln Ser Ala Asp Glu  
100 105 110  
Arg Asn His Asp Phe Asn Val Gly Gln Pro His Phe Ile Ala Asp Ala  
115 120 125  
Phe Gln Gly Phe Ala Phe Gln Gly Glu Thr Val Phe Glu Val Val Gly  
130 135 140  
Asp Ile Thr Arg Arg Thr Thr Glu Ala Gln His Arg Val Phe Phe Met  
145 150 155 160  
Arg Phe Val Tyr Val Ala Ala Asp Gln Val Gly Val Phe Val Gly Phe  
165 170 175  
Glu Val Gly His Thr Asp Asp Gly Phe Thr Arg Ile Asn Arg Cys Gly  
180 185 190  
Gln Cys Arg His Ala Phe Gly Asp Phe Ile Asp Val Glu Val Asp Arg  
195 200 205  
Gly Arg Val Thr Gly Asp Thr Ala Gly Asn Phe Arg Phe Phe Val Val  
210 215 220  
Leu Phe Val Lys Phe Gln Gln Gly Phe Gly Val Asp Thr Asp Leu Ala  
225 230 235 240  
Val Asp Asp Lys Phe His Thr Arg Gln Ala Asp Ala Phe Ala Gly Gln  
245 250 255  
Val Gly Glu Ala Glu Cys Glu Phe Gly Ile Ala Asp Val His His Asp  
260 265 270  
Phe Tyr Arg Cys Phe Arg His Val Val Gln Ser Asn Ile Gly Asn Leu  
275 280 285  
Tyr Val Gln Gln Ala Gly Val Asp Glu Ala Gly Ile Ala Phe Gly Thr  
290 295 300  
Gly Tyr Gly Asn Phe Leu Thr Val Phe Gln Gln Phe Gly Cys Ile Ala  
305 310 315 320  
Ala Ala Asp Asn Gly Arg Asn Thr Gln Phe Ala Arg Asp Asp Gly Gly  
325 330 335  
Val Ala Gly Thr Ser Ala Pro Val Gly His Asp Gly Gly Ser Ala Phe  
340 345 350  
His His Arg Phe Pro Ile Trp Val Gly His Val Gly Asn Gln Tyr Val  
355 360 365

Ala Gly Phe Asp Gly Ile His Leu Gly Ser Ile Phe Asn Gln Ala Tyr  
 370 375 380

Leu Ala Leu Thr Asp Phe Leu Thr Asp Gly Ala Ala Phe Ala Gln Asp  
 385 390 395 400

Gly Phe Phe Ala Val Asp Arg Lys Ala Ala Gln Val Ala Ala Ala Phe  
 405 410 415

Phe Leu Gly Phe Asp Gly Phe Gly Thr Gly Leu Gln Asp Val Glu Phe  
 420 425 430

Ala Val Gln Ala Val Ala Ser Pro Phe Asp Val His Arg Ala Ala Val  
 435 440 445

Val Phe Phe Asp Gly Gln Cys Val Met Arg Gln Leu Gly Asp Phe Phe  
 450 455 460

Val Gly Asn Gly Glu Ala Val Ala Val Phe Phe Gly Asp Ile Asp Val  
 465 470 475 480

Gly Tyr Arg Phe Ala Gly Phe Cys Phe Val Gly Lys Asn His Phe Asp  
 485 490 495

Val Phe Ala His Gly Phe Ala Gln Asp Gly Arg Phe Ala Cys Phe Gln  
 500 505 510

Arg Gly Phe Glu His Ile Glu Phe Val Gly Ile Asp Cys Ala Leu Tyr  
 515 520 525

Asp Val Phe Ala Gln Thr Val Gly Ser Asp Lys Asp Asp Leu Val Val  
 530 535 540

Thr Gly Phe Gly Ile Glu Gly Glu His His  
 545 550

<210> 1337

<211> 507

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1337

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gcttccgcac aggcggggcgc ggtggacgcg ctcaagcaat tcaacaacga tgccgacggt 120
atcagcggca gcttcaccca aaccgtccaa agcaaaaaga aaacccaaac cgcgcacggc 180
acgttcaaaa tcctgcgccc gggcctcttc aaatgggaat acactttgcc ctacagacag 240
actattgtcg gcgacggtca aaccgtttgg ctctacgatg ttgatttggc acaagtgacc 300
aagtcgtccc aagaccaggc catcggcggc agccccgcgc ccatacctgtc gaacaaaacc 360
gccctcgaaa gcagttacac gctgaaagag gacggttcgt ccaacggcat cgattatgtg 420
cggggcaacg cccaaacgca acaacgccgg ctaccaatac atccgcatcg gcttcaaagg 480
cgccaacctc gccgccatgc agcttaa 507
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<210> 1338

<211> 168



<212> PRT

<213> Neisseria gonorrhoeae

<400> 1338

Met Met Lys Pro His Asn Leu Phe Gln Phe Leu Ala Val Cys Ser Leu  
1 5 10 15

Thr Val Ala Val Ala Ser Ala Gln Ala Gly Ala Val Asp Ala Leu Lys  
20 25 30

Gln Phe Asn Asn Asp Ala Asp Gly Ile Ser Gly Ser Phe Thr Gln Thr  
35 40 45

Val Gln Ser Lys Lys Lys Thr Gln Thr Ala His Gly Thr Phe Lys Ile  
50 55 60

Leu Arg Pro Gly Leu Phe Lys Trp Glu Tyr Thr Leu Pro Tyr Arg Gln  
65 70 75 80

Thr Ile Val Gly Asp Gly Gln Thr Val Trp Leu Tyr Asp Val Asp Leu  
85 90 95

Ala Gln Val Thr Lys Ser Ser Gln Asp Gln Ala Ile Gly Gly Ser Pro  
100 105 110

Ala Ala Ile Leu Ser Asn Lys Thr Ala Leu Glu Ser Ser Tyr Thr Leu  
115 120 125

Lys Glu Asp Gly Ser Ser Asn Gly Ile Asp Tyr Val Arg Gly Asn Ala  
130 135 140

Gln Thr Gln Gln Arg Arg Leu Pro Ile His Pro His Arg Leu Gln Arg  
145 150 155 160

Arg Gln Pro Arg Arg His Ala Ala  
165

<210> 1339

<211> 503

<212> DNA

<213> Neisseria meningitidis

<400> 1339

atgatgaaac cgcacaacct gttccaattc ctgcgcggtt gctccctgac cgtcgccgtc 60  
gcttccgcac aggcggggcg ggtagacgcg cttaagcaat tcaacaacga tgccgacggt 120  
atcagcggga gtttcaccca amccgtccaa wgcaaaaaga aaacccaaac cgcgcacggc 180  
acgttcaaaa tctcgcgacc gggccttttc aaatgggaat acaccaaact tacaggcaaa 240  
ccatcgtcgg cgacgggtcaa acygtttggc tmtacgatgt ygatctggca caagtgacca 300  
agtgtgccca agaccaggcc ataggcgsca gcccgccgcg catcctgtcg aacaaarccg 360  
ccctcgaaag cagctacacg ctgaaagagg acggttcgtc caacggcatc gattatgtgg 420  
gcaacgcccc aacgcaacaa cgccgggtac caatacatcc gcatcggtt caaaggcggc 480  
aacctcgccg ccatgcagct yaa 503

<210> 1340

<211> 168  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1340

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Met Met Lys Pro His Asn Leu Phe Gln Phe Leu Ala Val Cys Ser Leu
 1           5           10           15

Thr Val Ala Val Ala Ser Ala Gln Ala Gly Ala Val Asp Ala Leu Lys
      20           25           30

Gln Phe Asn Asn Asp Ala Asp Gly Ile Ser Gly Ser Phe Thr Gln Xaa
      35           40           45

Val Gln Xaa Lys Lys Lys Thr Gln Thr Ala His Gly Thr Phe Lys Ile
      50           55           60

Leu Arg Pro Gly Leu Phe Lys Trp Glu Tyr Thr Lys Leu Tyr Arg Gln
      65           70           75           80

Thr Ile Val Gly Asp Gly Gln Thr Val Trp Leu Tyr Asp Val Asp Leu
      85           90           95

Ala Gln Val Thr Lys Ser Ser Gln Asp Gln Ala Ile Gly Xaa Ser Pro
      100           105           110

Ala Ala Ile Leu Ser Asn Lys Xaa Ala Leu Glu Ser Ser Tyr Thr Leu
      115           120           125

Lys Glu Asp Gly Ser Ser Asn Gly Ile Asp Tyr Val Gly Asn Ala Gln
      130           135           140

Thr Gln Gln Arg Arg Leu Pro Ile His Pro His Arg Leu Gln Arg Arg
      145           150           155           160

Gln Pro Arg Arg His Ala Ala Xaa
      165

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<210> 1341  
 <211> 504  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1341

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atgatgaaac cgcacaacct gttccaattc ctgcgcgttt gctccctgac cgtctccgtc 60
gcttccgcac aggcggggcg ggtggacgcg ctcaagcaat tcaacaacga tgccgacggt 120
atcagcggca gtttacccca aaccgtccaa agcaaaaaga aaacccaaac cgcgcacggc 180
acgttcaaaa tcctgcgccc gggcctcttt aaatgggaat acacttcgcc ttacaaacag 240
actattgtcg gcgacggtca aaccgtttgg ctctacgatg tcgatttggc acaagtgacc 300
aagtcgtccc aagaccaggc cataggcggc agccccgccg ccatacctgtc gaacaaaacc 360
gccctcgaaa gcagctacac gctgaaagag gacggttcgt ccaacggcat cgattatgtg 420
ggcaacgccc aaacgcaaca acgacggcta ccaatacatc cgcacgggct tcaaaggcgg 480
caacctcgcc gccatgcagc ttaa

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<210> 1342

<211> 167  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1342  
 Met Met Lys Pro His Asn Leu Phe Gln Phe Leu Ala Val Cys Ser Leu  
           1                  5                  10                  15  
 Thr Val Ser Val Ala Ser Ala Gln Ala Gly Ala Val Asp Ala Leu Lys  
                   20                  25                  30  
 Gln Phe Asn Asn Asp Ala Asp Gly Ile Ser Gly Ser Phe Thr Gln Thr  
           35                  40                  45  
 Val Gln Ser Lys Lys Lys Thr Gln Thr Ala His Gly Thr Phe Lys Ile  
           50                  55                  60  
 Leu Arg Pro Gly Leu Phe Lys Trp Glu Tyr Thr Ser Pro Tyr Lys Gln  
           65                  70                  75                  80  
 Thr Ile Val Gly Asp Gly Gln Thr Val Trp Leu Tyr Asp Val Asp Leu  
                   85                  90                  95  
 Ala Gln Val Thr Lys Ser Ser Gln Asp Gln Ala Ile Gly Gly Ser Pro  
                   100                  105                  110  
 Ala Ala Ile Leu Ser Asn Lys Thr Ala Leu Glu Ser Ser Tyr Thr Leu  
           115                  120                  125  
 Lys Glu Asp Gly Ser Ser Asn Gly Ile Asp Tyr Val Gly Asn Ala Gln  
           130                  135                  140  
 Thr Gln Gln Arg Arg Leu Pro Ile His Pro His Arg Leu Gln Arg Arg  
           145                  150                  155                  160  
 Gln Pro Arg Arg His Ala Ala  
                   165

<210> 1343  
 <211> 624  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 1343  
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 gcttccgcac aggcgggagc ggtggagcgc ctcaagcaat tcaacaacga tgccgacggt 120  
 atcagcggca gcttcaccca aaccgtccaa agcaaaaaga aaaccctaac cgcgcacggc 180  
 acgttcacaaa tctgcgccc gggcctcttc aaatgggaat acactttgcc ctacagacag 240  
 actattgtcg gcgacggtca aaccgttttg ctctacgatg ttgatttgcc acaagtgacc 300  
 aagtcgtccc aagaccaggc catcggcggc agccccgcgc ccctcctgtc gaacaaaacc 360  
 gccctcgaaa gcagttacac gctgaaagag gacggttcgt ccaacggcat cgattatgtg 420  
 cgggcaacgc ccaaacgcaa caacgcccgc taccataata tccgcatcgg cttcaaaggc 480  
 ggcaacctcg ccgcatgca gcttaaagac agcttcggca accaaacctc catcagtttc 540  
 ggcggtttga ataccaatcc ccaactctcg cgcggcgcgt tcaagtttac cccgcccaaa 600  
 ggcggtggacg tgttgagcaa ctga 624

<210> 1344  
 <211> 207  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1344  
 Met Met Lys Pro His Asn Leu Phe Gln Phe Leu Ala Val Cys Ser Leu  
 1 5 10 15  
 Thr Val Ala Val Ala Ser Ala Gln Ala Gly Ala Val Asp Ala Leu Lys  
 20 25 30  
 Gln Phe Asn Asn Asp Ala Asp Gly Ile Ser Gly Ser Phe Thr Gln Thr  
 35 40 45  
 Val Gln Ser Lys Lys Lys Thr Gln Thr Ala His Gly Thr Phe Lys Ile  
 50 55 60  
 Leu Arg Pro Gly Leu Phe Lys Trp Glu Tyr Thr Leu Pro Tyr Arg Gln  
 65 70 75 80  
 Thr Ile Val Gly Asp Gly Gln Thr Val Trp Leu Tyr Asp Val Asp Leu  
 85 90 95  
 Ala Gln Val Thr Lys Ser Ser Gln Asp Gln Ala Ile Gly Gly Ser Pro  
 100 105 110  
 Ala Ala Ile Leu Ser Asn Lys Thr Ala Leu Glu Ser Ser Tyr Thr Leu  
 115 120 125  
 Lys Glu Asp Gly Ser Ser Asn Gly Ile Asp Tyr Val Arg Ala Thr Pro  
 130 135 140  
 Lys Arg Asn Asn Ala Gly Tyr Gln Tyr Ile Arg Ile Gly Phe Lys Gly  
 145 150 155 160  
 Gly Asn Leu Ala Ala Met Gln Leu Lys Asp Ser Phe Gly Asn Gln Thr  
 165 170 175  
 Ser Ile Ser Phe Gly Gly Leu Asn Thr Asn Pro Gln Leu Ser Arg Gly  
 180 185 190  
 Ala Phe Lys Phe Thr Pro Pro Lys Gly Val Asp Val Leu Ser Asn  
 195 200 205

<210> 1345  
 <211> 624  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1345  
 atgatgaaac cgcacaacct gttccaattc ctgcgcgttt gctccctgac cgtcgccgtc 60  
 gcttcgcgac aggcggggcg gtagacgcg cttaagcaat tcaacaacga tgccgacggt 120  
 atcagcggca gttcaccca aaccgtccaa agcaaaaaga aaaccctaac cgcgcacggc 180  
 acgttcaaaa tctgcgacc gggccttttc aaatgggaat acaccaaac ttacaggcaa 240

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accatcgtcg gcgacgggtca aaccgttttg ctctacgatg ttgatctggc acaagtgacc 300
aagtcgtccc aagaccaggc cataggcggc agccccgcgc ccatacctgtc gaacaaaacc 360
gccctcgaaa gcagctacac gctgaaagag gacggttcgt ccaacggcat cgattatgtg 420
ctggcaacgc ccaaacgcaa caacgcgcgc taccaatata tccgcatcgg cttcaaaggc 480
ggcaacctcg ccgccatgca gcttaaagac agcttcggca accaaacctc catcagtttc 540
ggcggtttga ataccaatcc ccaactctcg cgcggcgcgt tcaagtttac cccgccc aaa 600
ggcgtggacg tgttgagcaa ctga                                     624

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<210> 1346

<211> 207

<212> PRT

<213> Neisseria meningitidis

<400> 1346

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Met Met Lys Pro His Asn Leu Phe Gln Phe Leu Ala Val Cys Ser Leu
  1             5             10             15

```

```

Thr Val Ala Val Ala Ser Ala Gln Ala Gly Ala Val Asp Ala Leu Lys
      20             25             30

```

```

Gln Phe Asn Asn Asp Ala Asp Gly Ile Ser Gly Ser Phe Thr Gln Thr
      35             40             45

```

```

Val Gln Ser Lys Lys Lys Thr Gln Thr Ala His Gly Thr Phe Lys Ile
      50             55             60

```

```

Leu Arg Pro Gly Leu Phe Lys Trp Glu Tyr Thr Lys Pro Tyr Arg Gln
      65             70             75             80

```

```

Thr Ile Val Gly Asp Gly Gln Thr Val Trp Leu Tyr Asp Val Asp Leu
      85             90             95

```

```

Ala Gln Val Thr Lys Ser Ser Gln Asp Gln Ala Ile Gly Gly Ser Pro
      100            105            110

```

```

Ala Ala Ile Leu Ser Asn Lys Thr Ala Leu Glu Ser Ser Tyr Thr Leu
      115            120            125

```

```

Lys Glu Asp Gly Ser Ser Asn Gly Ile Asp Tyr Val Leu Ala Thr Pro
      130            135            140

```

```

Lys Arg Asn Asn Ala Gly Tyr Gln Tyr Ile Arg Ile Gly Phe Lys Gly
      145            150            155            160

```

```

Gly Asn Leu Ala Ala Met Gln Leu Lys Asp Ser Phe Gly Asn Gln Thr
      165            170            175

```

```

Ser Ile Ser Phe Gly Gly Leu Asn Thr Asn Pro Gln Leu Ser Arg Gly
      180            185            190

```

```

Ala Phe Lys Phe Thr Pro Pro Lys Gly Val Asp Val Leu Ser Asn
      195            200            205

```

<210> 1347

<211> 624

<212> DNA  
<213> *Neisseria meningitidis*

<400> 1347  
atgatgaaac cgcacaacct gttccaattc ctgcgcgttt gctccctgac cgtctccgtc 60  
gcttccgcac aggcgggcgc ggtggacgcg ctcaagcaat tcaacaacga tgccgacggt 120  
atcagcggca gcttcaccca aaccgtccaa agcaaaaaga aaacccaaac cgcgcacggc 180  
acgttcaaaa tcttgcgccc gggcctcttt aaatgggaat acacttcgcc ttacaaacag 240  
actattgtcg gcgacggtca aaccgtttgg ctctacgatg tcgatttggc acaagtgacc 300  
aagtcgtccc aagaccaggc cataggcggc agccccgcgc ccacctctgc gaacaaaacc 360  
gccctcgaaa gcagctacac gctgaaagag gacggttcgt ccaacggcat cgattatgtg 420  
ctggcaacgc ccaaacgcaa caacgccggc taccaatata tccgcatcgc cttcaaaggc 480  
ggcaacctcg ccgccatgca gcttaaagac agcttcggca atcaaacctc catcagtttc 540  
ggcggtttga ataccaatcc ccaactctcg cgcggcgcgt tcaagtttac cccgcccaaa 600  
ggcgtggacg tgttgagcaa ctga 624

<210> 1348  
<211> 207  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 1348  
Met Met Lys Pro His Asn Leu Phe Gln Phe Leu Ala Val Cys Ser Leu  
1 5 10 15  
Thr Val Ser Val Ala Ser Ala Gln Ala Gly Ala Val Asp Ala Leu Lys  
20 25 30  
Gln Phe Asn Asn Asp Ala Asp Gly Ile Ser Gly Ser Phe Thr Gln Thr  
35 40 45  
Val Gln Ser Lys Lys Lys Thr Gln Thr Ala His Gly Thr Phe Lys Ile  
50 55 60  
Leu Arg Pro Gly Leu Phe Lys Trp Glu Tyr Thr Ser Pro Tyr Lys Gln  
65 70 75 80  
Thr Ile Val Gly Asp Gly Gln Thr Val Trp Leu Tyr Asp Val Asp Leu  
85 90 95  
Ala Gln Val Thr Lys Ser Ser Gln Asp Gln Ala Ile Gly Gly Ser Pro  
100 105 110  
Ala Ala Ile Leu Ser Asn Lys Thr Ala Leu Glu Ser Ser Tyr Thr Leu  
115 120 125  
Lys Glu Asp Gly Ser Ser Asn Gly Ile Asp Tyr Val Leu Ala Thr Pro  
130 135 140  
Lys Arg Asn Asn Ala Gly Tyr Gln Tyr Ile Arg Ile Gly Phe Lys Gly  
145 150 155 160  
Gly Asn Leu Ala Ala Met Gln Leu Lys Asp Ser Phe Gly Asn Gln Thr  
165 170 175  
Ser Ile Ser Phe Gly Gly Leu Asn Thr Asn Pro Gln Leu Ser Arg Gly

180	185	190
Ala Phe Lys Phe Thr Pro Pro Lys Gly Val Asp Val Leu Ser Asn		
195	200	205

<210> 1349  
 <211> 207  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 1349  
 atgtccgcgc cgtcggcatc ggtaatcatt ttgttccatg ccgcttcgat ttcggcatcg 60  
 agctgttcgg ggaagggcgt gtccaaaatc cattggcgga tttctttgcc gacgcgtgcc 120  
 agttcggaaa cgtcttcgac atccaatttt gccagagcgg cggaatatgc ttcgttcaga 180  
 ccgttgtgtg cgagaaatgc gcggtag 207

<210> 1350  
 <211> 68  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 1350  
 Met Ser Ala Pro Ser Ala Ser Val Ile Ile Leu Phe His Ala Ala Ser  
 1 5 10 15  
 Ile Ser Ala Ser Ser Cys Ser Gly Lys Gly Val Ser Lys Ile His Trp  
 20 25 30  
 Arg Ile Ser Leu Pro Thr Arg Ala Ser Ser Glu Thr Ser Ser Thr Ser  
 35 40 45  
 Asn Phe Ala Arg Ala Ala Glu Met Arg Ser Phe Arg Pro Leu Cys Ala  
 50 55 60  
 Arg Asn Ala Arg  
 65

<210> 1351  
 <211> 207  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1351  
 atgtccgcac cgcggcatc ggcaaccatt ttgttccatg ccgcttcgat ttcggcatcg 60  
 agctgttcgg ggaagggcgt atccaaaatc cattggcgga tttctttgcc gacgcgtgcc 120  
 agttcggcaa cgtcttcgac atccaatttt gccagtgcgg cggaatatgc ttcgttcaga 180  
 ccgttgtgtg cgaggaatgc gcggtag 207

<210> 1352  
 <211> 68  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1352

Met Ser Ala Pro Pro Ala Ser Ala Thr Ile Leu Phe His Ala Ala Ser  
1 5 10 15

Ile Ser Ala Ser Ser Cys Ser Gly Lys Gly Val Ser Lys Ile His Trp  
20 25 30

Arg Ile Ser Leu Pro Thr Arg Ala Ser Ser Ala Thr Ser Ser Thr Ser  
35 40 45

Asn Phe Ala Ser Ala Ala Glu Met Arg Ser Leu Arg Pro Leu Cys Ala  
50 55 60

Arg Asn Ala Arg  
65

<210> 1353

<211> 207

<212> DNA

<213> Neisseria meningitidis

<400> 1353

atgtccgcgc cgccggcatc ggcaaccatt ttgttccatg ccgcttcgat ttcggcatcg 60  
agctgttcgg ggaagggcgt gtccaaaatc cattggcgga tttctttgcc gacgcgtgcc 120  
agttcggcaa cgtcttcgac atctaatttt gccagtgcgg cggaaatgcg ttcgctcaga 180  
ccgttgtgtg cgaggaatgc gcggtag 207

<210> 1354

<211> 207

<212> PRT

<213> Neisseria meningitidis

<400> 1354

Ala Thr Gly Thr Cys Cys Gly Cys Gly Cys Cys Gly Cys Cys Gly Gly  
1 5 10 15

Cys Ala Thr Cys Gly Gly Cys Ala Ala Cys Cys Ala Thr Thr Thr Thr  
20 25 30

Gly Thr Thr Cys Cys Ala Thr Gly Cys Cys Gly Cys Thr Thr Cys Gly  
35 40 45

Ala Thr Thr Thr Cys Gly Gly Cys Ala Thr Cys Gly Ala Gly Cys Thr  
50 55 60

Gly Thr Thr Cys Gly Gly Gly Gly Ala Ala Gly Gly Gly Cys Gly Thr  
65 70 75 80

Gly Thr Cys Cys Ala Ala Ala Ala Thr Cys Cys Ala Thr Thr Gly Gly  
85 90 95

Cys Gly Gly Ala Thr Thr Thr Cys Thr Thr Thr Gly Cys Cys Gly Ala  
100 105 110

Cys Gly Cys Gly Thr Gly Cys Cys Ala Gly Thr Thr Cys Gly Gly Cys



115 120 125

Ala Ala Cys Gly Thr Cys Thr Thr Cys Gly Ala Cys Ala Thr Cys Thr  
130 135 140

Ala Ala Thr Thr Thr Thr Gly Cys Cys Ala Gly Thr Gly Cys Gly Gly  
145 150 155 160

Cys Gly Gly Ala Ala Ala Thr Gly Cys Gly Thr Thr Cys Gly Cys Thr  
165 170 175

Cys Ala Gly Ala Cys Cys Gly Thr Thr Gly Thr Gly Thr Gly Cys Gly  
180 185 190

Ala Gly Gly Ala Ala Thr Gly Cys Gly Cys Gly Gly Thr Ala Gly  
195 200 205

<210> 1355  
<211> 360  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 1355  
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aagccattga tattcaggaa ggtttcctgt tggccggcaa atgatgcgtc gggcaggtct 120  
tcggcggttg cggaagagcg tacggcaacg gaaatgtccg cgccgtcggc atcggtatc 180  
atgttggtcc atgccgcttc gatttcggca tcgagctggt cggggaaggg cgtgtccaaa 240  
atccattggc ggatttcctt gccgacgcgt gccagttcgg aaacgtcttc gacatccaat 300  
tttgccagag cggcggaat gcgttcgttc agaccgttgt gtgcgagaaa tgcgcggtag 360

<210> 1356  
<211> 119  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 1356  
Met Ala Arg Ser Leu Tyr Arg Glu Ala Lys Thr Trp Arg Ile Ala Phe  
1 5 10 15

Leu Thr Leu Ser Lys Pro Leu Ile Phe Arg Lys Val Ser Cys Trp Pro  
20 25 30

Ala Asn Asp Ala Ser Gly Arg Ser Ser Ala Val Ala Glu Glu Arg Thr  
35 40 45

Ala Thr Glu Met Ser Ala Pro Ser Ala Ser Val Ile Ile Leu Phe His  
50 55 60

Ala Ala Ser Ile Ser Ala Ser Ser Cys Ser Gly Lys Gly Val Ser Lys  
65 70 75 80

Ile His Trp Arg Ile Ser Leu Pro Thr Arg Ala Ser Ser Glu Thr Ser  
85 90 95

Ser Thr Ser Asn Phe Ala Arg Ala Ala Glu Met Arg Ser Phe Arg Pro  
100 105 110

Leu Cys Ala Arg Asn Ala Arg  
115

<210> 1357  
<211> 360  
<212> DNA  
<213> Neisseria meningitidis

<400> 1357  
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aagccggttg tgttcaagaa ggtttcctgt tgtccagcga atgatgcgtc cggcaggtct 120  
tcggcagttg cggaagaacg tacggcaacg gaaatgtccg caccgccggc atcggcaacc 180  
atattgttcc atgccgcttc gatttcggca tcgagctgtt cggggaaagg cgtatccaaa 240  
atccattggc ggatttcttt gccgacgcgt gccagttcgg caacgtcttc gacatccaat 300  
tttggcagtg cggcgggaaat gcgttcgctc agaccgttgt gtgcgaggaa tgcgcggtag 360

<210> 1358  
<211> 119  
<212> PRT  
<213> Neisseria meningitidis

<400> 1358  
Met Ala Arg Ser Leu Tyr Arg Glu Ala Asn Thr Trp Cys Ile Ala Ser  
1 5 10 15

Leu Thr Leu Ser Lys Pro Leu Met Phe Lys Lys Val Ser Cys Cys Pro  
20 25 30

Ala Asn Asp Ala Ser Gly Arg Ser Ser Ala Val Ala Glu Glu Arg Thr  
35 40 45

Ala Thr Glu Met Ser Ala Pro Pro Ala Ser Ala Thr Ile Leu Phe His  
50 55 60

Ala Ala Ser Ile Ser Ala Ser Ser Cys Ser Gly Lys Gly Val Ser Lys  
65 70 75 80

Ile His Trp Arg Ile Ser Leu Pro Thr Arg Ala Ser Ser Ala Thr Ser  
85 90 95

Ser Thr Ser Asn Phe Ala Ser Ala Ala Glu Met Arg Ser Leu Arg Pro  
100 105 110

Leu Cys Ala Arg Asn Ala Arg  
115

<210> 1359  
<211> 360  
<212> DNA  
<213> Neisseria meningitidis

<400> 1359

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atggcgcggt cgttgtagag ggaggcgaat acatggcgca tcgtttcttt aacgtttttcc 60
aagccgttga tattcaggaa ggtttcctgt tggccggcaa atgatgcgtc gggcaggtct 120
tcggcgggtg cggaagagcg tacggcaacg gaaatgtccg cgccgccggc atcggcaacc 180
attttgttcc atgccgttc gatttcggca tcgagctgtt cggggaaggg cgtgtccaaa 240
atccattggc ggatttcttt gccgacgcgt gccagttcgg caacgtcttc gacatctaata 300
tttgccagtg cggcggaat gcgttcgctc agaccgttgt gtgcgaggaa tgcgcggtag 360
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<210> 1360

<211> 119

<212> PRT

<213> *Neisseria meningitidis*

<400> 1360

```
Met Ala Arg Ser Leu Tyr Arg Glu Ala Asn Thr Trp Arg Ile Ala Ser
  1             5             10             15
```

```
Leu Thr Phe Ser Lys Pro Leu Ile Phe Arg Lys Val Ser Cys Trp Pro
      20             25             30
```

```
Ala Asn Asp Ala Ser Gly Arg Ser Ser Ala Val Ala Glu Glu Arg Thr
      35             40             45
```

```
Ala Thr Glu Met Ser Ala Pro Pro Ala Ser Ala Thr Ile Leu Phe His
      50             55             60
```

```
Ala Ala Ser Ile Ser Ala Ser Ser Cys Ser Gly Lys Gly Val Ser Lys
      65             70             75             80
```

```
Ile His Trp Arg Ile Ser Leu Pro Thr Arg Ala Ser Ser Ala Thr Ser
      85             90             95
```

```
Ser Thr Ser Asn Phe Ala Ser Ala Ala Glu Met Arg Ser Leu Arg Pro
      100            105            110
```

```
Leu Cys Ala Arg Asn Ala Arg
      115
```

<210> 1361

<211> 1278

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1361

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atgttggttc aggacttgcc ttttgaagtc aaactgaaaa aattccatat cgattttttac 60
aatacgggta tgccgcgcga ttttgccagc gatattgaag taacggacaa ggcaaccggt 120
gagaaactcg agcgacccat ccgcgtgaac catcctttga ccttgcaagg catcacgatt 180
tatcaggcga gttttgccga cggcgggttcg gatttgacat tcaaggcgtg gaatttgagg 240
gatgcttcgc gcgaacctgt cgtgttgaag gcaacctcca tacaccagtt tccgttgga 300
atcggcaaac acaaatatcg tcttgagttc gatcagttca cttctatgaa tgtggaggac 360
atgagcgagg gtgcggaacg ggaaaaaagc ctgaaatcca ctctgaacga tgtccgcgcc 420
gttactcagg aaggtaaaaa atacaccaat atcggccctt ccatcgtgta ccgcatccgt 480
gatgcggcag ggcaaggcgt cgaatataaa aactatatgc tgccgatttt gcaggacaaa 540
gattattttt ggctgaccgg cacgcgcagc ggcttgacgc agcaataccg ctggctgcgt 600
atccccttgg acaagcagtt gaaagcggac acctttatgg cattgcgtga gtttttgaaa 660
```

```

gatggggaag ggcgcaaacg tctggttgcc gacgcaacca aagacgcacc tgccgaaatc 720
cgcgaaacaat tcatgctggc tgcggaaaac acgctgaata tctttgcgca aaaaggctat 780
ttgggatttg acgaatttat tacgtccaat atcccgaag ggcagcagga taagatgcag 840
ggctatttct acgaaatgct ttacggcgtg atgaacgctg ctttgatga aaccatacgc 900
cggtacggct tgcccgaatg gcagcaggat gaagcgcgga accgtttcct gctgcacagt 960
atggatgcct atacggggct gacggaatat cccgcgccta tgetgetcca gcttgacggg 1020
ttttccgagg tgcgttcctc aggtttgcag atgaccggtt cgcggggtgc gcttttggtc 1080
tatctcggct cggattattgt ggttttgggt acagtattta tgttttatgt gccccaaaaa 1140
cgggcgtggg tattgttttc aaacdgc aaa atccgttttg ctatgtcttc ggccgcgagc 1200
gaacgggatt tgcagaagga atttcacaaa cacgtcgaga gcctgcaacg gctcggcaag 1260
gacttgaatc atgactga                                     1278

```

<210> 1362

<211> 424

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1362

```

Met Leu Val Gln Asp Leu Pro Phe Glu Val Lys Leu Lys Lys Phe His
  1                      5                      10                      15

```

```

Ile Asp Phe Tyr Asn Thr Gly Met Pro Arg Asp Phe Ala Ser Asp Ile
          20                      25                      30

```

```

Glu Val Thr Asp Lys Ala Thr Gly Glu Lys Leu Glu Arg Thr Ile Arg
          35                      40                      45

```

```

Val Asn His Pro Leu Thr Leu His Gly Ile Thr Ile Tyr Gln Ala Ser
          50                      55                      60

```

```

Phe Ala Asp Gly Gly Ser Asp Leu Thr Phe Lys Ala Trp Asn Leu Arg
          65                      70                      75                      80

```

```

Asp Ala Ser Arg Glu Pro Val Val Leu Lys Ala Thr Ser Ile His Gln
          85                      90                      95

```

```

Phe Pro Leu Glu Ile Gly Lys His Lys Tyr Arg Leu Glu Phe Asp Gln
          100                      105                      110

```

```

Phe Thr Ser Met Asn Val Glu Asp Met Ser Glu Gly Ala Glu Arg Glu
          115                      120                      125

```

```

Lys Ser Leu Lys Ser Thr Leu Asn Asp Val Arg Ala Val Thr Gln Glu
          130                      135                      140

```

```

Gly Lys Lys Tyr Thr Asn Ile Gly Pro Ser Ile Val Tyr Arg Ile Arg
          145                      150                      155                      160

```

```

Asp Ala Ala Gly Gln Ala Val Glu Tyr Lys Asn Tyr Met Leu Pro Ile
          165                      170                      175

```

```

Leu Gln Asp Lys Asp Tyr Phe Trp Leu Thr Gly Thr Arg Ser Gly Leu
          180                      185                      190

```

Gln Gln Gln Tyr Arg Trp Leu Arg Ile Pro Leu Asp Lys Gln Leu Lys

195	200	205
Ala Asp Thr Phe Met Ala Leu Arg Glu Phe Leu Lys Asp Gly Glu Gly 210 215 220		
Arg Lys Arg Leu Val Ala Asp Ala Thr Lys Asp Ala Pro Ala Glu Ile 225 230 235 240		
Arg Glu Gln Phe Met Leu Ala Ala Glu Asn Thr Leu Asn Ile Phe Ala 245 250 255		
Gln Lys Gly Tyr Leu Gly Leu Asp Glu Phe Ile Thr Ser Asn Ile Pro 260 265 270		
Lys Gly Gln Gln Asp Lys Met Gln Gly Tyr Phe Tyr Glu Met Leu Tyr 275 280 285		
Gly Val Met Asn Ala Ala Leu Asp Glu Thr Ile Arg Arg Tyr Gly Leu 290 295 300		
Pro Glu Trp Gln Gln Asp Glu Ala Arg Asn Arg Phe Leu Leu His Ser 305 310 315 320		
Met Asp Ala Tyr Thr Gly Leu Thr Glu Tyr Pro Ala Pro Met Leu Leu 325 330 335		
Gln Leu Asp Gly Phe Ser Glu Val Arg Ser Ser Gly Leu Gln Met Thr 340 345 350		
Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu Gly Ser Val Leu Leu Val 355 360 365		
Leu Gly Thr Val Phe Met Phe Tyr Val Pro Lys Lys Arg Ala Trp Val 370 375 380		
Leu Phe Ser Asn Lys Ile Arg Phe Ala Met Ser Ser Ala Arg Ser Glu 385 390 395 400		
Arg Asp Leu Gln Lys Glu Phe Pro Lys His Val Glu Ser Leu Gln Arg 405 410 415		
Leu Gly Lys Asp Leu Asn His Asp 420		

<210> 1363

<211> 1274

<212> DNA

<213> Neisseria meningitidis

<400> 1363

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atattggttc aggacttgcc ttttgaagtc aaactgaaaa aattccatat cgatttttac 60
aatacgggta tgccgcgtga tttcgccagc gatattgaag tgacggacaa ggcaaccggt 120
gagaaactcg agcgaccat ccgcgtgaac catcctttga ccttgacagg catcacgatt 180
tatcaggcga gttttgccga cggcggttcg gatttgacat tcaaggcgtg gaatttgggt 240
gatgcttcgc gcgagcctgt cgtgttgaag gcaacatcca tacaccagtt tccgttggaa 300
attggcaaac acaaatatcg tcttgagttc gatcagttca cttctatgaa tgtggaggac 360

```

```

atgagcgagg ggcggaacg ggaaaaaac ctgaaatcca cgctgmmcga tgtccgcgcc 420
gttactcagg aaggtaaaaa atacaccaat atcgccctt ccattgttta ccgtatccgt 480
gatgcggcag ggcaggcggg cgaatataaa aactatatgc tgccggtttt gcaggaacag 540
gattattttt ggattaccgg cagcgcagc ggcttgcagc agcaataccg ctggctgcgt 600
atccccttgg acaagcagtt gaaagcggac accctttagg cattgcgtga gtttttga 660
gatggggaag ggcgcaaacg tctggttgcc gacgcaacca aaggcgcacc tgccgaaatc 720
cgcgaaacaat tcatgctggc tgcggaaaac acgctgaaca tctttgcaca aaaaggctat 780
ttgggattgg acgaatttat tacgtccaat atcccgaaag agcagcagga taagatgcag 840
ggctattttt acgaaatgct ttacggcgtg atgaacgctg ctttggatga aaccatacgc 900
cggtagcggt tgcccgaatg gcagcaggat gaagcgcgga atcgtttcct gctgcacagt 960
atggatgcgt acacgggttt gaccgaatat cccgcgccta tgctgctgca acttgatggg 1020
ttttccgagg tgcgttcgtc gggtttgcag atgaccogtt ccccggtgca gcttttggtc 1080
tatctcggct cgggtgctgtt ggtattgggt acggtattga tgttttatgt gcgcgaaaaa 1140
cgggcggtgg tattgttttc agacggcaaa atccggtttg ccatgtcttc ggccgcagc 1200
gaacgggatt tgcagaagga atttccaaaa cacgtcgaga gtctgcaacg gctcggcaag 1260
gacttgaatc atga 1274

```

<210> 1364

<211> 425

<212> PRT

<213> *Neisseria meningitidis*

<400> 1364

```

Ile Leu Val Gln Asp Leu Pro Phe Glu Val Lys Leu Lys Lys Phe His
  1                      5                      10                      15

```

```

Ile Asp Phe Tyr Asn Thr Gly Met Pro Arg Asp Phe Ala Ser Asp Ile
      20                      25                      30

```

```

Glu Val Thr Asp Lys Ala Thr Gly Glu Lys Leu Glu Arg Thr Ile Arg
      35                      40                      45

```

```

Val Asn His Pro Leu Thr Leu His Gly Ile Thr Ile Tyr Gln Ala Ser
      50                      55                      60

```

```

Phe Ala Asp Gly Gly Ser Asp Leu Thr Phe Lys Ala Trp Asn Leu Gly
      65                      70                      75                      80

```

```

Asp Ala Ser Arg Glu Pro Val Val Leu Lys Ala Thr Ser Ile His Gln
      85                      90                      95

```

```

Phe Pro Leu Glu Ile Gly Lys His Lys Tyr Arg Leu Glu Phe Asp Gln
      100                     105                      110

```

```

Phe Thr Ser Met Asn Val Glu Asp Met Ser Glu Gly Ala Glu Arg Glu
      115                     120                      125

```

```

Lys Ser Leu Lys Ser Thr Leu Xaa Asp Val Arg Ala Val Thr Gln Glu
      130                     135                      140

```

```

Gly Lys Lys Tyr Thr Asn Ile Gly Pro Ser Ile Val Tyr Arg Ile Arg
      145                     150                      155                      160

```

```

Asp Ala Ala Gly Gln Ala Val Glu Tyr Lys Asn Tyr Met Leu Pro Val
      165                     170                      175

```

Leu Gln Glu Gln Asp Tyr Phe Trp Ile Thr Gly Thr Arg Ser Gly Leu  
 180 185 190  
 Gln Gln Gln Tyr Arg Trp Leu Arg Ile Pro Leu Asp Lys Gln Leu Lys  
 195 200 205  
 Ala Asp Thr Phe Met Ala Leu Arg Glu Phe Leu Lys Asp Gly Glu Gly  
 210 215 220  
 Arg Lys Arg Leu Val Ala Asp Ala Thr Lys Gly Ala Pro Ala Glu Ile  
 225 230 235 240  
 Arg Glu Gln Phe Met Leu Ala Ala Glu Asn Thr Leu Asn Ile Phe Ala  
 245 250 255  
 Gln Lys Gly Tyr Leu Gly Leu Asp Glu Phe Ile Thr Ser Asn Ile Pro  
 260 265 270  
 Lys Glu Gln Gln Asp Lys Met Gln Gly Tyr Phe Tyr Glu Met Leu Tyr  
 275 280 285  
 Gly Val Met Asn Ala Ala Leu Asp Glu Thr Ile Arg Arg Tyr Gly Leu  
 290 295 300  
 Pro Glu Trp Gln Gln Asp Glu Ala Arg Asn Arg Phe Leu Leu His Ser  
 305 310 315 320  
 Met Asp Ala Tyr Thr Gly Leu Thr Glu Tyr Pro Ala Pro Met Leu Leu  
 325 330 335  
 Gln Leu Asp Gly Phe Ser Glu Val Arg Ser Ser Gly Leu Gln Met Thr  
 340 345 350  
 Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu Gly Ser Val Leu Leu Val  
 355 360 365  
 Leu Gly Thr Val Leu Met Phe Tyr Val Arg Glu Lys Arg Ala Trp Val  
 370 375 380  
 Leu Phe Ser Asp Gly Lys Ile Arg Phe Ala Met Ser Ser Ala Arg Ser  
 385 390 395 400  
 Glu Arg Asp Leu Gln Lys Glu Phe Pro Lys His Val Glu Ser Leu Gln  
 405 410 415  
 Arg Leu Gly Lys Asp Leu Asn His Asp  
 420 425

<210> 1365

<211> 1278

<212> DNA

<213> *Neisseria meningitidis*

<400> 1365

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gagaaactcg agcgcacccat ccgcgtgaac catcctttga ccttgacacg catcacgatt 180
tatcaggcga gttttgccga cggcgggttcg gatttgacat tcaaggcgtg gaatttggtt 240
gatgcttcgc gcgagcctgt cgtgttgaag gcaacatcca tacaccagtt tccgttggaa 300
attggcaaac acaaatatcg tcttgagttc gatcagttta cttctatgaa tgtggaggac 360
atgagcgagg gcgcggaacg ggaaaaaagc ctgaaatcca cgctgaacga tgtccgcgcc 420
gttactcagg aaggtaaaaa atacaccaat atcggccctt ccattgttta ccgtatccgt 480
gatgcggcag ggcaggcggg cgaatataaa aactatatgc tgccggtttt gcaggaaacag 540
gattattttt ggattaccgg cacgcgcagc ggcttgacgc agcaataccg ctggctgcgt 600
atccccttgg acaagcagtt gaaagcggac acctttatgg cattgcgtga gtttttgaaa 660
gatggggaag ggcgcaaacg tctggttgcc gacgcaacca aaggcgcacc tgccgaaatc 720
cgcgaaacaat tcatgctggc tgcggaaaac acgctgaaca tctttgcaca aaaaggctat 780
ttgggattgg acgaatttat tacgtccaat atcccgaaag agcagcagga taagatgcag 840
ggctatttct acgaaatgct ttacggcgtg atgaacgctg ctttgatga aaccatacgc 900
cggtagcggt tgcccgaatg gcagcaggat gaagcgcgga atcgtttcct gctgcacagt 960
atggatgcgt acacgggttt gaccgaatat cccgcgccta tgctgctgca acttgatggg 1020
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tatctcggct cgggtgctgtt ggtattgggt acggtattga tgttttatgt gcgcgaaaaa 1140
cgggcgtggg tattgttttc agacggcaaa atccggtttg ccatgtcttc ggccgcagc 1200
gaacgggatt tgcagaagga atttccaaaa cacgtcgaga gtctgcaacg gctcggcaag 1260
gacttgaatc atgactga
1278

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<210> 1366  
 <211> 425  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1366

Ile	Leu	Val	Gln	Asp	Leu	Pro	Phe	Glu	Val	Lys	Leu	Lys	Lys	Phe	His
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Ile	Asp	Phe	Tyr	Asn	Thr	Gly	Met	Pro	Arg	Asp	Phe	Ala	Ser	Asp	Ile
			20					25					30		
Glu	Val	Thr	Asp	Lys	Ala	Thr	Gly	Glu	Lys	Leu	Glu	Arg	Thr	Ile	Arg
		35					40					45			
Val	Asn	His	Pro	Leu	Thr	Leu	His	Gly	Ile	Thr	Ile	Tyr	Gln	Ala	Ser
	50					55					60				
Phe	Ala	Asp	Gly	Gly	Ser	Asp	Leu	Thr	Phe	Lys	Ala	Trp	Asn	Leu	Gly
65					70					75					80
Asp	Ala	Ser	Arg	Glu	Pro	Val	Val	Leu	Lys	Ala	Thr	Ser	Ile	His	Gln
				85					90					95	
Phe	Pro	Leu	Glu	Ile	Gly	Lys	His	Lys	Tyr	Arg	Leu	Glu	Phe	Asp	Gln
		100						105					110		
Phe	Thr	Ser	Met	Asn	Val	Glu	Asp	Met	Ser	Glu	Gly	Ala	Glu	Arg	Glu
	115						120					125			
Lys	Ser	Leu	Lys	Ser	Thr	Leu	Asn	Asp	Val	Arg	Ala	Val	Thr	Gln	Glu
	130						135					140			
Gly	Lys	Lys	Tyr	Thr	Asn	Ile	Gly	Pro	Ser	Ile	Val	Tyr	Arg	Ile	Arg



145		150		155		160									
Asp	Ala	Ala	Gly	Gln	Ala	Val	Glu	Tyr	Lys	Asn	Tyr	Met	Leu	Pro	Val
			165						170					175	
Leu	Gln	Glu	Gln	Asp	Tyr	Phe	Trp	Ile	Thr	Gly	Thr	Arg	Ser	Gly	Leu
			180					185					190		
Gln	Gln	Gln	Tyr	Arg	Trp	Leu	Arg	Ile	Pro	Leu	Asp	Lys	Gln	Leu	Lys
			195				200					205			
Ala	Asp	Thr	Phe	Met	Ala	Leu	Arg	Glu	Phe	Leu	Lys	Asp	Gly	Glu	Gly
	210					215					220				
Arg	Lys	Arg	Leu	Val	Ala	Asp	Ala	Thr	Lys	Gly	Ala	Pro	Ala	Glu	Ile
225				230						235					240
Arg	Glu	Gln	Phe	Met	Leu	Ala	Ala	Glu	Asn	Thr	Leu	Asn	Ile	Phe	Ala
			245						250					255	
Gln	Lys	Gly	Tyr	Leu	Gly	Leu	Asp	Glu	Phe	Ile	Thr	Ser	Asn	Ile	Pro
			260					265					270		
Lys	Glu	Gln	Gln	Asp	Lys	Met	Gln	Gly	Tyr	Phe	Tyr	Glu	Met	Leu	Tyr
		275					280					285			
Gly	Val	Met	Asn	Ala	Ala	Leu	Asp	Glu	Thr	Ile	Arg	Arg	Tyr	Gly	Leu
	290					295					300				
Pro	Glu	Trp	Gln	Gln	Asp	Glu	Ala	Arg	Asn	Arg	Phe	Leu	Leu	His	Ser
305				310						315					320
Met	Asp	Ala	Tyr	Thr	Gly	Leu	Thr	Glu	Tyr	Pro	Ala	Pro	Met	Leu	Leu
				325					330					335	
Gln	Leu	Asp	Gly	Phe	Ser	Glu	Val	Arg	Ser	Ser	Gly	Leu	Gln	Met	Thr
		340						345					350		
Arg	Ser	Pro	Gly	Ala	Leu	Leu	Val	Tyr	Leu	Gly	Ser	Val	Leu	Leu	Val
		355					360					365			
Leu	Gly	Thr	Val	Leu	Met	Phe	Tyr	Val	Arg	Glu	Lys	Arg	Ala	Trp	Val
	370					375					380				
Leu	Phe	Ser	Asp	Gly	Lys	Ile	Arg	Phe	Ala	Met	Ser	Ser	Ala	Arg	Ser
385					390					395					400
Glu	Arg	Asp	Leu	Gln	Lys	Glu	Phe	Pro	Lys	His	Val	Glu	Ser	Leu	Gln
			405						410					415	
Arg	Leu	Gly	Lys	Asp	Leu	Asn	His	Asp							
		420						425							

<210> 1367  
 <211> 894

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1367

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cggctcggac atctggcggt ttacctttta aaggaagacc gcgcgcgcgc catcgccaat 180
atgcggcagg cgggtttgaa ccccgacacg cagacgggtca aagccgtttt tgcggaaacg 240
gcaaaatgcg gtttggaact tgccccgcgc tttttcaaaa aaccggaaga catcgaaaca 300
atgttcaaag cgggtacacg ctgggaacac gtgcagcagg ctttggacaa gggcgaaggg 360
ctgctgttca tcacgcgcgc catcggcagc tacgatttgg gcggacgcta catcagccag 420
cagcttccgt tccacctgac cgccatgtac aagccgcgcg aaatcaaagc gatagacaaa 480
atcatgcagg cgggcagggt gcgcggcaaa ggcaaaaccg cgcccaccgg catacaaggg 540
gtcaaacaaa tcatcaaggc cctgcgcgcg ggcgaggcaa ccatcctcct gcccgaccac 600
gtcccttctc cgcaggaagg cggcggcggt tgggcggatt ttttcggcaa acctgcatac 660
accatgacac tggcggcaaa attggcacac gtcaaaggcg tgaaaaccct gtttttctgc 720
tgccaacgcc tgcccgcgcg acaaggcttc gtgttgaca tccgccccgt ccaaggggaa 780
ttgaacggca acaaagccca cgatgcgcgc gtgttcaacc gcaataccga atattggata 840
cgccgttttc cgacgcagta tctgtttatg tacaaccgct ataaaacgcc gtaa 894
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<210> 1368

<211> 297

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1368

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Met Phe Arg Leu Gln Phe Arg Leu Phe Pro Pro Leu Arg Thr Ala Met
  1             5             10            15

His Ile Leu Leu Thr Ala Leu Leu Lys Cys Leu Ser Leu Ser Leu
      20             25             30

Ser Cys Leu His Thr Leu Gly Asn Arg Leu Gly His Leu Ala Phe Tyr
      35             40             45

Leu Leu Lys Glu Asp Arg Ala Arg Ile Val Ala Asn Met Arg Gln Ala
      50             55             60

Gly Leu Asn Pro Asp Thr Gln Thr Val Lys Ala Val Phe Ala Glu Thr
      65             70             75             80

Ala Lys Cys Gly Leu Glu Leu Ala Pro Ala Phe Phe Lys Lys Pro Glu
      85             90             95

Asp Ile Glu Thr Met Phe Lys Ala Val His Gly Trp Glu His Val Gln
     100            105            110

Gln Ala Leu Asp Lys Gly Glu Gly Leu Leu Phe Ile Thr Pro His Ile
     115            120            125

Gly Ser Tyr Asp Leu Gly Gly Arg Tyr Ile Ser Gln Gln Leu Pro Phe
     130            135            140

His Leu Thr Ala Met Tyr Lys Pro Pro Lys Ile Lys Ala Ile Asp Lys
     145            150            155            160
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Ile	Met	Gln	Ala	Gly	Arg	Val	Arg	Gly	Lys	Gly	Lys	Thr	Ala	Pro	Thr	
				165					170					175		
Gly	Ile	Gln	Gly	Val	Lys	Gln	Ile	Ile	Lys	Ala	Leu	Arg	Ala	Gly	Glu	
			180					185					190			
Ala	Thr	Ile	Ile	Leu	Pro	Asp	His	Val	Pro	Ser	Pro	Gln	Glu	Gly	Gly	
		195					200					205				
Gly	Val	Trp	Ala	Asp	Phe	Phe	Gly	Lys	Pro	Ala	Tyr	Thr	Met	Thr	Leu	
	210					215					220					
Ala	Ala	Lys	Leu	Ala	His	Val	Lys	Gly	Val	Lys	Thr	Leu	Phe	Phe	Cys	
225					230					235					240	
Cys	Glu	Arg	Leu	Pro	Asp	Gly	Gln	Gly	Phe	Val	Leu	His	Ile	Arg	Pro	
			245						250					255		
Val	Gln	Gly	Glu	Leu	Asn	Gly	Asn	Lys	Ala	His	Asp	Ala	Ala	Val	Phe	
		260						265					270			
Asn	Arg	Asn	Thr	Glu	Tyr	Trp	Ile	Arg	Arg	Phe	Pro	Thr	Gln	Tyr	Leu	
	275						280					285				
Phe	Met	Tyr	Asn	Arg	Tyr	Lys	Thr	Pro								
	290					295										

<210> 1369  
 <211> 866  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1369  
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 ttgaccgccc tgctcaaatt cctctccctg ctgccgcttt cctgtctgca cacgctggga 120  
 aaccggctcg gacatctggc gttttacctt ttaaagggaag accgcgcgcg catcgctgcc 180  
 aatatgcggc aggcgggttt gaaccccgac cccaaaacgg tcaaagccgt ttttgcggaa 240  
 acggcaaaaag gcggtttgga acttgcccc gcgtttttca gaaaaccgga agacatagaa 300  
 acaatgttca aagcgggtaca cggctgggaa catgtgcagc aggctttgga caaacacgaa 360  
 gggctgctat tcatcacgcc gcacatcggc agctacgatt tgggcggacg ctacatcagc 420  
 cagcagcttc cgttcccgt gaccgccatg taaaaccgc cgaaaatcaa agcgatagac 480  
 aaaatcatgc aggcgggcag ggttcgcggc aaaggaaaaa ccgcgcctac cagcatacaa 540  
 ggggtcaaac aaatcatcaa agccctgcgt tcgggcgagc aaccatcgtc ctgcccgacc 600  
 acgtcccctc ccctcaagaa ggcggggaag gcgtatgggt ggattttctc ggcaaacctg 660  
 cctataccat gacgctggcg gcaarattgg cacacgtcaa aggcgtgaaa accctgtttt 720  
 tctgctgca acgcctgcct ggcgacaag gtttcgattt gcacatccgc cccgtccaag 780  
 ggggaattgaa cggcgacaaa gcccatgatg ccgcctgttt caaccgcaat gccgaatatt 840  
 ggatacgccg ttttccgacg catatc 866

<210> 1370  
 <211> 288  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1370

Met 1	Phe	Arg	Leu	Gln 5	Phe	Arg	Leu	Phe	Pro 10	Pro	Leu	Arg	Thr	Ala 15	Met
His	Ile	Leu	Leu 20	Thr	Ala	Leu	Leu	Lys 25	Cys	Leu	Ser	Leu	Leu 30	Pro	Leu
Ser	Cys	Leu 35	His	Thr	Leu	Gly	Asn 40	Arg	Leu	Gly	His	Leu 45	Ala	Phe	Tyr
Leu 50	Leu	Lys	Glu	Asp	Arg	Ala 55	Arg	Ile	Val	Ala	Asn 60	Met	Arg	Gln	Ala
Gly 65	Leu	Asn	Pro	Asp 70	Pro	Lys	Thr	Val	Lys	Ala 75	Val	Phe	Ala	Glu	Thr 80
Ala	Lys	Gly	Gly	Leu 85	Glu	Leu	Ala	Pro	Ala 90	Phe	Phe	Arg	Lys	Pro 95	Glu
Asp	Ile	Glu	Thr 100	Met	Phe	Lys	Ala	Val 105	His	Gly	Trp	Glu	His	Val	Gln
Gln	Ala	Leu 115	Asp	Lys	His	Glu	Gly 120	Leu	Leu	Phe	Ile	Thr 125	Pro	His	Ile
Gly 130	Ser	Tyr	Asp	Leu	Gly	Gly 135	Arg	Tyr	Ile	Ser	Gln 140	Gln	Leu	Pro	Phe
Pro 145	Leu	Thr	Ala	Met 150	Tyr	Lys	Pro	Pro	Lys	Ile 155	Lys	Ala	Ile	Asp	Lys 160
Ile	Met	Gln	Ala	Gly 165	Arg	Val	Arg	Gly	Lys 170	Gly	Lys	Thr	Ala	Pro 175	Thr
Ser	Ile	Gln	Gly 180	Val	Lys	Gln	Ile	Ile 185	Lys	Ala	Leu	Arg	Ser 190	Gly	Glu
Ala	Thr	Ile 195	Val	Leu	Pro	Asp	His 200	Val	Pro	Ser	Pro	Gln 205	Glu	Gly	Gly
Glu 210	Gly	Val	Trp	Val	Asp	Phe 215	Phe	Gly	Lys	Pro	Ala 220	Tyr	Thr	Met	Thr
Leu 225	Ala	Ala	Xaa	Leu	Ala 230	His	Val	Lys	Gly	Val 235	Lys	Thr	Leu	Phe	Phe 240
Cys	Cys	Glu	Arg	Leu 245	Pro	Gly	Gly	Gln	Gly 250	Phe	Asp	Leu	His	Ile 255	Arg
Pro	Val	Gln	Gly 260	Glu	Leu	Asn	Gly	Asp 265	Lys	Ala	His	Asp	Ala 270	Ala	Val
Phe	Asn	Arg 275	Asn	Ala	Glu	Tyr	Trp 280	Ile	Arg	Arg	Phe	Pro 285	Thr	His	Ile

<210> 1371  
 <211> 897  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1371  
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 accgccctgc tcaaatgcct ctccctgctg ccgctttcct gtctgcacac gctgggaaac 120  
 cggctcggac atctggcggt ttacctttta aaggaagacc gcgcgcgcat cgtcgccaat 180  
 atgcgtcagg caggcatgaa tcccgcaccc aaaacgggtca aagccgtttt tgcggaaacg 240  
 gcaaaaggcg gtttggaact tgcccccgcg tttttcagaa aaccggaaga catagaaaca 300  
 atgttcaaag cggtagacgg ctgggaacat gtgcagcagg ctttgacaa acacgaaggg 360  
 ctgctattca tcacgccgca catcggcagc tacgatttgg gcggacgcta catcagccag 420  
 cagcttccgt tcccgtgtac cgccatgtac aaaccgccga aaatcaaagc gatagacaaa 480  
 atcatgcagg cgggcagggt tcgcggcaaa ggaaaaaccg cgcctaccag catacaaggg 540  
 gtcaaacaaa tcatcaaagc cctgcgttcg ggcgaagcaa ccatcgtcct gcccgaccac 600  
 gtccccctccc ctcaagaagg cggggaaggc gtatgggtgg atttcttcgg caaacctgcc 660  
 tataccatga cgctggcggc aaaattggca cacgtcaaag gcgtgaaaac cctgtttttc 720  
 tgctgcgaac gcctgcctgg cggacaaggt ttcgatttgc acatccgccc cgtccaaggg 780  
 gaattgaacg gcgacaaaag ccatgatgcc gccgtgttca accgcaatgc cgaatattgg 840  
 atacgccgtt ttccgacgca gtatctgttt atgtacaacc gctacaaaat gccgtaa 897

<210> 1372  
 <211> 298  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 1372  
 Met Phe Arg Leu Gln Phe Arg Leu Phe Pro Pro Leu Arg Thr Ala Met  
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 His Ile Leu Leu Thr Ala Leu Leu Lys Cys Leu Ser Leu Leu Pro Leu  
 20 25 30  
 Ser Cys Leu His Thr Leu Gly Asn Arg Leu Gly His Leu Ala Phe Tyr  
 35 40 45  
 Leu Leu Lys Glu Asp Arg Ala Arg Ile Val Ala Asn Met Arg Gln Ala  
 50 55 60  
 Gly Met Asn Pro Asp Pro Lys Thr Val Lys Ala Val Phe Ala Glu Thr  
 65 70 75 80  
 Ala Lys Gly Gly Leu Glu Leu Ala Pro Ala Phe Phe Arg Lys Pro Glu  
 85 90 95  
 Asp Ile Glu Thr Met Phe Lys Ala Val His Gly Trp Glu His Val Gln  
 100 105 110  
 Gln Ala Leu Asp Lys His Glu Gly Leu Leu Phe Ile Thr Pro His Ile  
 115 120 125  
 Gly Ser Tyr Asp Leu Gly Gly Arg Tyr Ile Ser Gln Gln Leu Pro Phe  
 130 135 140

Pro Leu Thr Ala Met Tyr Lys Pro Pro Lys Ile Lys Ala Ile Asp Lys  
 145 150 155 160  
 Ile Met Gln Ala Gly Arg Val Arg Gly Lys Gly Lys Thr Ala Pro Thr  
 165 170 175  
 Ser Ile Gln Gly Val Lys Gln Ile Ile Lys Ala Leu Arg Ser Gly Glu  
 180 185 190  
 Ala Thr Ile Val Leu Pro Asp His Val Pro Ser Pro Gln Glu Gly Gly  
 195 200 205  
 Glu Gly Val Trp Val Asp Phe Phe Gly Lys Pro Ala Tyr Thr Met Thr  
 210 215 220  
 Leu Ala Ala Lys Leu Ala His Val Lys Gly Val Lys Thr Leu Phe Phe  
 225 230 235 240  
 Cys Cys Glu Arg Leu Pro Gly Gly Gln Gly Phe Asp Leu His Ile Arg  
 245 250 255  
 Pro Val Gln Gly Glu Leu Asn Gly Asp Lys Ala His Asp Ala Ala Val  
 260 265 270  
 Phe Asn Arg Asn Ala Glu Tyr Trp Ile Arg Arg Phe Pro Thr Gln Tyr  
 275 280 285  
 Leu Phe Met Tyr Asn Arg Tyr Lys Met Pro  
 290 295

<210> 1373  
 <211> 897  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1373  
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 accgccctgc tcaaatgcct ctccctgctg ccgctttcct gtctgcacac gctgggaaac 120  
 cggctcggac atctggcgtt ttacctttta aaggaagacc gcgcgcgcac cgtcgccaat 180  
 atgcggcagg cgggtttgaa ccccgacccc aaaacgggtca aagccgtttt tgcggaaacg 240  
 gcaaaaggcg gtttggaact tgccccgcg tttttcagaa aaccggaaga catagaaaca 300  
 atgttcaaag cgttacacgg ctgggaacat gtgcagcagg ctttggacaa acacgaaggg 360  
 ctgctattca tcacgccgca catcggcagc tacgatttgg gcggacgcta catcagccag 420  
 cagcttccgt tcccgtgac cgccatgtac aaaccgccga aaatcaaagc gatagacaaa 480  
 atcatgcagg cgggcagggt tcgcggcaaa ggaaaaaccg cgcctaccag catacaaggg 540  
 gtcaaacaaa tcatcaaagc cctgcgttcg ggcgaagcaa ccatcgtcct gcccgaccac 600  
 gtcccctccc ctcaagaagg cggggaaggc gtatgggtgg atttcttcgg caaacctgcc 660  
 tataccatga cgctggcggc aaaattggca cactgcaaag gcgtgaaaac cctgtttttc 720  
 tggctgcgaac gccgcctgg cggacaagg ttcgatttgc acatccgccc cgtccaaggg 780  
 gaattgaacg gcgacaaagc ccatgatgcc gccgtgttca accgcaatgc cgaatattgg 840  
 atacgccgtt ttccgacgca gtatctgttt atgtacaacc gctacaaaat gccgtaa 897

<210> 1374  
 <211> 298  
 <212> PRT

<213> Neisseria meningitidis

<400> 1374

Met	Phe	Arg	Leu	Gln	Phe	Arg	Leu	Phe	Pro	Pro	Leu	Arg	Thr	Ala	Met	
1				5					10					15		
His	Ile	Leu	Leu	Thr	Ala	Leu	Leu	Lys	Cys	Leu	Ser	Leu	Leu	Pro	Leu	
			20					25					30			
Ser	Cys	Leu	His	Thr	Leu	Gly	Asn	Arg	Leu	Gly	His	Leu	Ala	Phe	Tyr	
		35					40					45				
Leu	Leu	Lys	Glu	Asp	Arg	Ala	Arg	Ile	Val	Ala	Asn	Met	Arg	Gln	Ala	
	50					55					60					
Gly	Leu	Asn	Pro	Asp	Pro	Lys	Thr	Val	Lys	Ala	Val	Phe	Ala	Glu	Thr	
65					70					75					80	
Ala	Lys	Gly	Gly	Leu	Glu	Leu	Ala	Pro	Ala	Phe	Phe	Arg	Lys	Pro	Glu	
				85					90					95		
Asp	Ile	Glu	Thr	Met	Phe	Lys	Ala	Val	His	Gly	Trp	Glu	His	Val	Gln	
			100					105					110			
Gln	Ala	Leu	Asp	Lys	His	Glu	Gly	Leu	Leu	Phe	Ile	Thr	Pro	His	Ile	
		115					120					125				
Gly	Ser	Tyr	Asp	Leu	Gly	Gly	Arg	Tyr	Ile	Ser	Gln	Gln	Leu	Pro	Phe	
	130					135					140					
Pro	Leu	Thr	Ala	Met	Tyr	Lys	Pro	Pro	Lys	Ile	Lys	Ala	Ile	Asp	Lys	
145					150					155					160	
Ile	Met	Gln	Ala	Gly	Arg	Val	Arg	Gly	Lys	Gly	Lys	Thr	Ala	Pro	Thr	
			165					170						175		
Ser	Ile	Gln	Gly	Val	Lys	Gln	Ile	Ile	Lys	Ala	Leu	Arg	Ser	Gly	Glu	
		180						185					190			
Ala	Thr	Ile	Val	Leu	Pro	Asp	His	Val	Pro	Ser	Pro	Gln	Glu	Gly	Gly	
		195					200					205				
Glu	Gly	Val	Trp	Val	Asp	Phe	Phe	Gly	Lys	Pro	Ala	Tyr	Thr	Met	Thr	
	210					215					220					
Leu	Ala	Ala	Lys	Leu	Ala	His	Val	Lys	Gly	Val	Lys	Thr	Leu	Phe	Phe	
225				230						235					240	
Cys	Cys	Glu	Arg	Leu	Pro	Gly	Gly	Gln	Gly	Phe	Asp	Leu	His	Ile	Arg	
				245				250						255		
Pro	Val	Gln	Gly	Glu	Leu	Asn	Gly	Asp	Lys	Ala	His	Asp	Ala	Ala	Val	
		260					265						270			
Phe	Asn	Arg	Asn	Ala	Glu	Tyr	Trp	Ile	Arg	Arg	Phe	Pro	Thr	Gln	Tyr	
		275					280					285				

Leu Phe Met Tyr Asn Arg Tyr Lys Met Pro  
290 295

<210> 1375

<211> 1563

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 1375

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gtcatcgtct tggcggtagt cccagtgtgc cgcgtcgccg ttgattttca aaggcgggtc 180
ggcgaagtcg ggttggtgct gccattggcc gaagctgttg ggttcgtagt gcggcaggct 240
gccgtagttg ccgtcggcgc ggccttgctc gtcgcgctgg ttgctgtgaa cagggcaacg 300
cggacgattg acggggattt ggcggaagtt cacaccaag cggtaacgtt gcgcgtcggc 360
gtaattgaac aaacgggctt gcaacatttt atccgggctc gcgccgatac cgggaacgag 420
gttgctcggg gcgaaggcgg attgttccac atcggcgaag aagttttcgg gattgcgggt 480
caactcgaat tcgccactt caatcagcgg atagtctttt ttcggccaaa ctttgggtcaa 540
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cgtccatttc gggaaactcg cgcgtcgat ggcttcgtac aggtcgcgct gatggctttc 660
gcggtcgctc gcgatgattt ttgcagcttc ttcggttggtc aggtttttta tcccttgctg 720
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atgcgaaccg aagccgtgca tatggcggta gctggcggga ataccgcggg cgctcatcac 840
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agtcacgcct cttgttctt ttctcaggtt ggtcaaattg ggggcaaacg gcttacagta 1440
cgatttggcg gaaagcgtat tcgtaaccgg tttcttgatt gtaataaatt tcttgaatcg 1500
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taa
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<210> 1376

<211> 520

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 1376

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Met Ala Val Phe Asp Glu Val Gly Arg Ile Ala His Gly Cys Gly Gly
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Val Val Lys Gln Ser Leu Phe Leu Arg Val Val His Gln Val Glu Gln
  20             25             30

Gly Ala Arg Leu Ala Glu Val Val Val Ile Val Leu Ala Val Val Pro
  35             40             45

Val Cys Arg Val Ala Val Asp Phe Gln Arg Arg Phe Gly Glu Val Gly
  50             55             60
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Leu Leu Leu Pro Leu Ala Glu Ala Val Gly Phe Val Val Arg Gln Ala  
 65 70 75 80  
 Ala Val Val Ala Val Gly Ala Ala Leu Ser Val Ala Leu Val Ala Val  
 85 90 95  
 Asn Arg Ala Thr Arg Thr Ile Asp Gly Asp Leu Ala Glu Val His Thr  
 100 105 110  
 Gln Ala Val Thr Leu Arg Val Gly Val Ile Glu Gln Thr Gly Leu Gln  
 115 120 125  
 His Phe Ile Arg Ala Arg Ala Asp Thr Gly Asn Glu Val Ala Arg Cys  
 130 135 140  
 Glu Gly Gly Leu Phe His Ile Gly Glu Glu Val Phe Gly Ile Ala Val  
 145 150 155 160  
 Gln Leu Glu Phe Ala His Phe Asn Gln Arg Ile Val Phe Phe Arg Pro  
 165 170 175  
 Asn Phe Gly Gln Val Lys Arg Met Ile Arg His Phe Phe Gly Ile Gly  
 180 185 190  
 Phe Arg His Asp Leu Asp Val His Arg Pro Phe Arg Glu Leu Ala Ala  
 195 200 205  
 Leu Asp Gly Phe Val Gln Val Ala Leu Met Ala Phe Ala Val Val Gly  
 210 215 220  
 Asp Asp Phe Cys Ser Phe Phe Val Gly Gln Val Phe Asn Pro Leu Leu  
 225 230 235 240  
 Ala Ala Glu Met Glu Phe His Pro Lys Thr Phe Ala Arg Phe Val Pro  
 245 250 255  
 Glu Ala Val Gly Met Arg Thr Glu Ala Val His Met Ala Val Ala Gly  
 260 265 270  
 Gly Asn Thr Ala Val Ala His His Asp Gly Asn Leu Val Gln Gly Phe  
 275 280 285  
 Gly Gln Gln Arg Pro Glu Val Pro Val Val Cys Gly Gly Thr His Ile  
 290 295 300  
 Gly Ala Arg Ile Ala Phe Asp Gly Phe Val Gln Val Gly Glu Phe Ala  
 305 310 315 320  
 Arg Val Ala Gln Glu Glu His Gly Arg Val Val Ala Asp His Ile Pro  
 325 330 335  
 Val Ala Phe Phe Gly Ile Glu Phe Gln Arg Lys Thr Ala Asp Val Ala  
 340 345 350  
 Phe Arg Ile Gly Cys Ala Ala Leu Ala Cys His Gly Gly Glu Thr Gly  
 355 360 365

Glu His Leu Gly Phe Phe Ala Asp Phe Ala Glu Asn Phe Gly Ala Gly  
370 375 380

Val Phe Gly Asp Val Val Cys Tyr Gly Lys Arg Thr Glu Arg Ala Arg  
385 390 395 400

Thr Phe Gly Val His Thr Ala Phe Gly Asp Asp Phe Ala His Glu Val  
405 410 415

Gly Glu Phe Phe Ile Gln Pro Gln Ile Leu Arg Gln Gln Gly Ala Ala  
420 425 430

Arg Ala Gly Gly Gln Ala Val Leu Ile Val Gly Asn Gly Arg Ala Val  
435 440 445

Val His Gly Gln Met Gly Tyr Gly Ala Phe Gly Gly Ser His Arg Ser  
450 455 460

Cys Ser Phe Ser Gln Val Gly Gln Met Gly Gly Lys Arg Leu Thr Val  
465 470 475 480

Arg Phe Gly Gly Lys Arg Ile Arg Asn Arg Phe Leu Asp Cys Asn Lys  
485 490 495

Phe Leu Glu Ser Thr Phe Tyr Phe Pro Phe Ala Lys Thr Met Asp Ala  
500 505 510

Ile Ile Arg Gln Asp Phe Arg Tyr  
515 520

<210> 1377

<211> 1322

<212> DNA

<213> Neisseria meningitidis

<400> 1377

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gtcatcgtct tggcggtagt cccagtgtgc cgcgtcgccg ttgattttca aaggcggttc 180  
ggcgaatcgg ggttggtgct gccattggcc gaagctgtyg gggtcgtagt gcggcaggct 240  
gccgyagtgt ccgtcggcgc gcccttgccc gtygcgstgr ttgctgtgaa casggcaacg 300  
cggacgattg acgggaattt ggcggaagtt tacgcccaa cggtagcgtt gtgcgtcggc 360  
gtaattgaac aaacgcgctt gcagcatttt atctsggctg gcgccgacac cgggaacgag 420  
gttgctcggg gcgaaggcgg attgttcac atcggcgaag aagttttcgg gattgcggtt 480  
ctcaaacgga tgataaggta ctttttccgc gtctgcttca ggcatgactt ggatgtacat 540  
cgtccatttc ggaaactcgc cgcgttcgat ggcttcstat aagtcgcgct gatggctttc 600  
gcggtcgtcg gcgatgattt tggcggttctt ttcgttggtc aggtttttta tgccctgttg 660  
ggtgcggaat tggaatttca cccaaaaacg ctgcctgct tcgttccaga agctgtaggt 720  
atgcgaaccg aagccgtgca tatggcggtg gccggcgggg atgccgcggt cgctcatcac 780  
gatgtaact tgggtgcagt cttcgggcag cagcgtccag aagtcaccag tgtttgtggc 840  
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cgggtcgcgc aggaagaaca cgggcgtggt gtgcccgaac acatcccagt tgccttcttc 960  
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gcctgccacg gtggtgaaac gggcgaacat ctcggttttt ttgccgactt cgctgaagat 1080

tcctttggcg tgcatacggc gttcggggat gacttcgcgc acgaagtcgg cgagtttttc 1140  
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 gatttggcgg aaagcgtatt cgtaaccggg ttcttgattg caataaattt cttgaatcga 1260  
 cattttattt cccttttgta aaaactatgg atgcgactat acgccaagat tttcgctatt 1320  
 aa 1322

<210> 1378

<211> 520

<212> PRT

<213> Neisseria meningitidis

<400> 1378

Met Ala Val Phe Asp Glu Val Gly Arg Val Ala His Cys Gly Gly Gly  
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Val Ala Glu Gln Cys Leu Phe Leu Arg Val Val His Gln Val Glu Gln  
 20 25 30

Gly Ala Arg Leu Ala Glu Ile Val Val Ile Val Leu Ala Val Val Pro  
 35 40 45

Val Cys Arg Val Ala Val Asp Phe Gln Arg Arg Phe Gly Glu Ser Gly  
 50 55 60

Leu Leu Leu Pro Leu Ala Glu Ala Val Gly Phe Val Val Arg Gln Ala  
 65 70 75 80

Ala Xaa Val Ala Val Gly Ala Ala Leu Pro Val Ala Xaa Xaa Ala Val  
 85 90 95

Asn Xaa Ala Thr Arg Thr Ile Asp Gly Asn Leu Ala Glu Val Tyr Ala  
 100 105 110

Gln Thr Val Ala Leu Cys Val Gly Val Ile Glu Gln Thr Arg Leu Gln  
 115 120 125

His Phe Ile Xaa Ala Gly Ala Asp Thr Gly Asn Glu Val Ala Arg Cys  
 130 135 140

Glu Gly Gly Leu Phe His Ile Gly Glu Glu Val Phe Gly Ile Ala Val  
 145 150 155 160

Gln Leu Glu Phe Ala His Phe Asn Gln Arg Ile Val Phe Phe Arg Pro  
 165 170 175

Asn Phe Gly Gln Val Lys Arg Met Ile Arg Tyr Phe Phe Arg Val Cys  
 180 185 190

Phe Arg His Asp Leu Asp Val His Arg Pro Phe Arg Lys Leu Ala Ala  
 195 200 205

Phe Asp Gly Phe Xaa Xaa Val Ala Leu Met Ala Phe Ala Val Val Gly  
 210 215 220

Asp Asp Phe Gly Gly Phe Phe Val Gly Gln Val Phe Asn Ala Leu Leu  
 225 230 235 240

Gly	Ala	Glu	Met	Glu	Phe	His	Pro	Lys	Thr	Leu	Ala	Cys	Phe	Val	Pro	245	250	255
Glu	Ala	Val	Gly	Met	Arg	Thr	Glu	Ala	Val	His	Met	Ala	Val	Ala	Gly	260	265	270
Gly	Asp	Ala	Ala	Val	Ala	His	His	Asp	Gly	Asn	Leu	Val	Gln	Cys	Phe	275	280	285
Gly	Gln	Gln	Arg	Pro	Glu	Val	Pro	Val	Val	Cys	Gly	Arg	Ala	His	Ile	290	295	300
Gly	Ala	Arg	Val	Ala	Phe	Asp	Gly	Phe	Val	Gln	Val	Gly	Glu	Leu	Thr	305	310	315
Arg	Val	Ala	Gln	Glu	Glu	His	Gly	Arg	Val	Val	Ala	Asp	His	Ile	Pro	325	330	335
Val	Ala	Phe	Phe	Gly	Ile	Lys	Phe	Gln	Gly	Lys	Thr	Ala	Asp	Val	Ala	340	345	350
Phe	Cys	Ile	Gly	Cys	Ala	Ala	Phe	Ala	Cys	His	Gly	Gly	Glu	Thr	Gly	355	360	365
Glu	His	Leu	Gly	Phe	Phe	Ala	Asp	Phe	Ala	Glu	Asp	Phe	Gly	Ala	Gly	370	375	380
Val	Phe	Gly	Asp	Val	Val	Arg	Tyr	Gly	Lys	Arg	Thr	Glu	Arg	Ala	Arg	385	390	395
Thr	Phe	Gly	Val	His	Thr	Ala	Phe	Gly	Asp	Asp	Phe	Ala	His	Glu	Val	405	410	415
Gly	Glu	Phe	Phe	Ile	Gln	Pro	Gln	Ile	Leu	Arg	Gln	Gln	Arg	Ala	Ala	420	425	430
Arg	Thr	Gly	Gly	Gln	Ala	Val	Leu	Ile	Val	Gly	Asn	Arg	Arg	Ala	Val	435	440	445
Val	His	Gly	Gln	Met	Gly	Tyr	Arg	Ala	Phe	Gly	Gly	Ser	His	Arg	Ser	450	455	460
Cys	Ser	Phe	Ser	Gln	Val	Gly	Gln	Met	Gly	Gly	Lys	Arg	Leu	Thr	Val	465	470	475
Arg	Phe	Gly	Gly	Lys	Arg	Ile	Arg	Asn	Arg	Phe	Leu	Asp	Cys	Asn	Lys	485	490	495
Phe	Leu	Glu	Ser	Thr	Phe	Tyr	Phe	Pro	Phe	Val	Lys	Thr	Met	Asp	Ala	500	505	510
Thr	Ile	Arg	Gln	Asp	Phe	Arg	Tyr									515	520	

<210> 1379

<211> 1562  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1379  
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 gtcacgtct tggcggtagt cccagtgcgc cgcgtcgccg ttgattttca aaggcggttc 180  
 ggcgaagtcg ggctgctgct gccattggcc gaagctgttg ggttcgtagt gcggcaggct 240  
 gccgtagttg ccgtcggcgc gtccttgctc gtcgcgctgg ttgctgtgaa cagggcaacg 300  
 cggacggttg acagggattt ggcggaagtt cacgcccaag cggtagcgtt gcgcgtcggc 360  
 gtaattgaac aaacgcgcct gcaacatttt atctgggctg gcgccgacac cgggaacgag 420  
 gttgctcggg gcgaaggcgg attgttccac atcggcgaag aagttttcgg gattgcgggt 480  
 caactcgaat tcgcccactt caatcagcgg atagtctttt ttcggccaaa ctttggtcaa 540  
 gtcaaacgga tgatacggca ctttttccgc atcggcttca ggcatgactt ggatgtacat 600  
 cgtccatttc ggaaactcgc cgcgctcgat ggcttcgtac aggtcgcgct gatggctttc 660  
 acggtcgtcg gcgatgattt tggcggcttc ttcgttggtc aggtttttaa tgccttggtg 720  
 ggtgcggaaa tgggaatttc cccaaaaacg ctgcctgct tcgttccaga agctgtaggt 780  
 atgcgaaccg aagccgtgca tatggcggta gccggcgggg atgcgcgggt cgctcatcac 840  
 gatgtaact tgggtgcagt cttcgggcag cagcgtccag aagtcccagt tgtttgtggc 900  
 agagcgcata ttggtgcgcg ggtcgcgttt gacggctttg ttcaggtcgg ggaacttacg 960  
 cgggtcgcgc aggaagaaca cgggcgtggt gttgccgacc acatcccagt tgccttcttc 1020  
 ggtatagaac ttcaacgcaa aaccgcggat gtcgcgttct gcacggctg cgcgcggttc 1080  
 gcctgccacg gtggtgaaac gggcgaacat ctcggttttt ttgcgactt cgctgaagat 1140  
 tttggcgcgg gtgtatttgg tgatgtcgtg cgttacggtt aacgtaccga acgcgccga 1200  
 acctttggcg tgcatacggc gttcggggat gacttcgcgc acgaagtcgg cgagtttttc 1260  
 attcagccac aaatcctgcg ccagcagagg gccgcgagga ccggcggtca ggctgttttg 1320  
 attgtcggca acaggcgcgc cgttggtcat ggtcagatgg gttacagggc atttgagggt 1380  
 antcatcgct cttgttcctt ttctcagggt ggtcaaattg gggtaaacgg cttacagtac 1440  
 gatttggcgg aaagcgtatt cgtaaccggt ttcttgattg caataaattt cttgaatcga 1500  
 cattttattt cccttttgta aaaactatgg atgcgactat acgccaagat tttcgtattt 1562  
 aa

<210> 1380  
 <211> 520  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1380  
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 Val Ala Glu Gln Cys Leu Phe Leu Arg Val Val His Gln Val Glu Gln  
 20 25 30  
 Gly Ala Arg Leu Ala Glu Ile Val Val Ile Val Leu Ala Val Val Pro  
 35 40 45  
 Val Arg Arg Val Ala Val Asp Phe Gln Arg Arg Phe Gly Glu Val Gly  
 50 55 60  
 Leu Leu Leu Pro Leu Ala Glu Ala Val Gly Phe Val Val Arg Gln Ala  
 65 70 75 80  
 Ala Val Val Ala Val Gly Ala Ser Leu Ser Val Ala Leu Val Ala Val  
 85 90 95

Asn	Arg	Ala	Thr	Arg	Thr	Val	Asp	Arg	Asp	Leu	Ala	Glu	Val	His	Ala		
			100					105					110				
Gln	Ala	Val	Ala	Leu	Arg	Val	Gly	Val	Ile	Glu	Gln	Thr	Arg	Leu	Gln		
		115					120					125					
His	Phe	Ile	Trp	Ala	Gly	Ala	Asp	Thr	Gly	Asn	Glu	Val	Ala	Arg	Cys		
	130					135					140						
Glu	Gly	Gly	Leu	Phe	His	Ile	Gly	Glu	Glu	Val	Phe	Gly	Ile	Ala	Val		
145					150					155					160		
Gln	Leu	Glu	Phe	Ala	His	Phe	Asn	Gln	Arg	Ile	Val	Phe	Phe	Arg	Pro		
			165						170					175			
Asn	Phe	Gly	Gln	Val	Lys	Arg	Met	Ile	Arg	His	Phe	Phe	Arg	Ile	Gly		
		180						185					190				
Phe	Arg	His	Asp	Leu	Asp	Val	His	Arg	Pro	Phe	Arg	Lys	Leu	Ala	Ala		
		195					200					205					
Leu	Asp	Gly	Phe	Val	Gln	Val	Ala	Leu	Met	Ala	Phe	Thr	Val	Val	Gly		
	210					215					220						
Asp	Asp	Phe	Gly	Gly	Phe	Phe	Val	Gly	Gln	Val	Phe	Asn	Ala	Leu	Leu		
225					230					235					240		
Gly	Ala	Glu	Met	Glu	Phe	His	Pro	Lys	Thr	Leu	Ala	Cys	Phe	Val	Pro		
			245						250					255			
Glu	Ala	Val	Gly	Met	Arg	Thr	Glu	Ala	Val	His	Met	Ala	Val	Ala	Gly		
		260						265					270				
Gly	Asp	Ala	Ala	Val	Ala	His	His	Asp	Gly	Asn	Leu	Val	Gln	Cys	Phe		
	275						280					285					
Gly	Gln	Gln	Arg	Pro	Glu	Val	Pro	Val	Val	Cys	Gly	Arg	Ala	His	Ile		
	290					295					300						
Gly	Ala	Arg	Val	Ala	Phe	Asp	Gly	Phe	Val	Gln	Val	Gly	Glu	Leu	Thr		
305					310					315					320		
Arg	Val	Ala	Gln	Glu	Glu	His	Gly	Arg	Val	Val	Ala	Asp	His	Ile	Pro		
			325						330					335			
Val	Ala	Phe	Phe	Gly	Ile	Glu	Leu	Gln	Arg	Lys	Thr	Ala	Asp	Val	Ala		
		340						345					350				
Phe	Cys	Ile	Gly	Cys	Ala	Ala	Phe	Ala	Cys	His	Gly	Gly	Glu	Thr	Gly		
	355						360					365					
Glu	His	Leu	Gly	Phe	Phe	Ala	Asp	Phe	Ala	Glu	Asp	Phe	Gly	Ala	Gly		
	370					375					380						
Val	Phe	Gly	Asp	Val	Val	Arg	Tyr	Gly	Lys	Arg	Thr	Glu	Arg	Ala	Arg		
385				390						395					400		

Thr Phe Gly Val His Thr Ala Phe Gly Asp Asp Phe Ala His Glu Val  
 405 410 415  
 Gly Glu Phe Phe Ile Gln Pro Gln Ile Leu Arg Gln Gln Arg Ala Ala  
 420 425 430  
 Arg Thr Gly Gly Gln Ala Val Leu Ile Val Gly Asn Arg Arg Ala Val  
 435 440 445  
 Val His Gly Gln Met Gly Tyr Arg Ala Phe Gly Gly Xaa His Arg Ser  
 450 455 460  
 Cys Ser Phe Ser Gln Val Gly Gln Xaa Gly Gly Lys Arg Leu Thr Val  
 465 470 475 480  
 Arg Phe Gly Gly Lys Arg Ile Arg Asn Arg Phe Leu Asp Cys Asn Lys  
 485 490 495  
 Phe Leu Glu Ser Thr Phe Tyr Phe Pro Phe Val Lys Thr Met Asp Ala  
 500 505 510  
 Thr Ile Arg Gln Asp Phe Arg Tyr  
 515 520

<210> 1381  
 <211> 558  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 1381  
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 ggcaacgggt tgctcgcat gggcaagctg ctgctgcttc aacgccagtt cgcggcggat 180  
 gcggtttgcc tcgtcctgct gggtttgaa ggcagcgttg agcgtggctt ggacttcctc 240  
 caattcgggc agacgctctt cgtgttcggc aacctgcac gccattccg ccaattcggg 300  
 ttgcttttct tcgacctgca actcgttttc ctcaagctgc acgcggattt gctgctgctc 360  
 ctgccgatg cgttgcaact gcgcctgcgc tgcctgcttg tcgcgttcga tgcgttggtg 420  
 caggttttgc cgttgccgga ttgtttcttc caaacgggca atctgctcgc gcaacacgcc 480  
 gcgtttgttg ctcaattcgt gtactgcctg ctgctgcgac tgttcggcag tctgcaaggc 540  
 gtgtacttcg ttatttaa 558

<210> 1382  
 <211> 185  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 1382  
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 Gly Phe Gly Leu Val Gly Gln Val Gln Gly Leu Val Phe Leu Leu Gln  
 20 25 30

Thr Ala Phe Ala Leu Phe Val Leu Gly Asn Gly Leu Phe Gly Met Gly  
           35                                  40                                  45  
 Lys Leu Leu Leu Leu Gln Arg Gln Phe Ala Ala Asp Ala Val Cys Leu  
           50                                  55                                  60  
 Val Leu Leu Gly Leu Glu Gly Ser Val Glu Arg Gly Leu Asp Phe Phe  
           65                                  70                                  75                                  80  
 Gln Phe Gly Gln Thr Leu Phe Val Phe Gly Asn Leu His Arg Pro Phe  
                                   85                                  90                                  95  
 Arg Gln Phe Gly Leu Leu Phe Phe Asp Leu Gln Leu Val Phe Leu Lys  
                                   100                                  105                                  110  
 Leu His Ala Asp Leu Leu Leu Leu Leu Pro Asp Ala Leu Gln Leu Arg  
           115                                  120                                  125  
 Leu Arg Cys Leu Leu Val Ala Phe Asp Ala Leu Val Gln Val Leu Pro  
           130                                  135                                  140  
 Val Ala Asp Leu Phe Phe Gln Thr Gly Asn Leu Leu Ala Gln His Ala  
           145                                  150                                  155                                  160  
 Ala Phe Val Ala Gln Phe Val Tyr Cys Leu Leu Leu Arg Leu Phe Gly  
                                   165                                  170                                  175  
 Ser Leu Gln Gly Val Tyr Phe Val Ile  
                                   180                                  185

<210> 1383  
 <211> 558  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1383  
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 gtcgggcagg ttttaaggctt ggttttctctg tttcagacga cctttgcgct ctctgtgctt 120  
 ggcaatcggt tggtcggcat gggcaagctg ctgctgcttc aacgccagtt cgcggcggat 180  
 gcggtttgcc tcgtcctgct gggtttgaa ggcggcggtt agcgtggtt gggcttcttc 240  
 caattcgggc agacgctcct cgtgttcggc aacctgcac gccattccg ccagctcgg 300  
 ttgtttttct tcgacctgca actcgttttc ttcaagctgc acgcggattt gctgctgctc 360  
 ttgatgaatg cgttgtaact gcgcctgcgc tgcttgcctg tcgcgttcga tgcgttggtg 420  
 caggttttgc tgatggcgga tttgttcttc caaacgggca atctgctcgc gcaacacgcc 480  
 gcgcttggtg ctcaattcat gcactgcctg ctgctgcgac tggtcggcag tctgcaaggc 540  
 gtgtacttcg tcgtttaa 558

<210> 1384  
 <211> 185  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1384  
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Gly Phe Gly Phe Val Gly Gln Val Xaa Gly Leu Val Phe Leu Phe Gln  
                   20                                  25                                  30  
 Thr Thr Phe Ala Leu Phe Val Leu Gly Asn Arg Leu Phe Gly Met Gly  
                   35                                  40                                  45  
 Lys Leu Leu Leu Leu Gln Arg Gln Phe Ala Ala Asp Ala Val Cys Leu  
                   50                                  55                                  60  
 Val Leu Leu Gly Leu Glu Gly Gly Val Glu Arg Gly Leu Gly Phe Phe  
                   65                                  70                                  75                                  80  
 Gln Phe Gly Gln Thr Leu Leu Val Phe Gly Asn Leu His Arg Pro Phe  
                                   85                                  90                                  95  
 Arg Gln Leu Gly Leu Phe Phe Phe Asp Leu Gln Leu Val Phe Phe Lys  
                                   100                                  105                                  110  
 Leu His Ala Asp Leu Leu Leu Leu Leu Met Asn Ala Leu Xaa Leu Arg  
                                   115                                  120                                  125  
 Leu Arg Cys Leu Leu Val Ala Phe Asp Ala Leu Val Gln Val Leu Leu  
                                   130                                  135                                  140  
 Met Ala Asp Leu Phe Phe Gln Thr Gly Asn Leu Leu Ala Gln His Ala  
                                   145                                  150                                  155                                  160  
 Ala Leu Val Ala Gln Phe Met His Cys Leu Leu Leu Arg Leu Phe Gly  
                                   165                                  170                                  175  
 Ser Leu Gln Gly Val Tyr Phe Val Val  
                                   180                                  185

<210> 1385  
 <211> 558  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1385  
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 gtcaggcaga ttcagggtt ggttttctg tttcagacga cctttgcgt cttcgtgctt 120  
 ggcaacggtt tggtcggcat gggcaagctg ctgctgcttc aacgccagtt cgcggcggat 180  
 gcggtttgcc tcgtcctgct gggtttgaa ggcggcattg agtgtggctt gggtttcttc 240  
 caattcgggc agacgctctt cgtgttcggc aacctgcac gccattccg ccaattcggg 300  
 ttgcttttct tccgcctgca actcgttttc ttcaagctgc acgcggattt gctgctgctc 360  
 ctgatggatg cgtgcacat gcgcctgcgc cgctgcttg tcgcgttcga tgcgttggtg 420  
 cagggtttgc tgatggcgga tttgttcttc caaacgggca atctgttcgc gcaacacgcc 480  
 gcggttggtg cccaattcgt gcaccgcctg ctgctgcgac tggtcggcag tctgcaaggc 540  
 gtgtacttcg tcgtttaa 558

<210> 1386  
 <211> 185  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1386

Met Leu Leu Leu Ala Leu Gln Gln Gly Gly Ser Phe Leu Arg Gly Gly  
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Gly Phe Gly Phe Val Arg Gln Ile Gln Gly Leu Val Phe Leu Phe Gln  
20 25 30  
Thr Thr Phe Ala Leu Phe Val Leu Gly Asn Gly Leu Phe Gly Met Gly  
35 40 45  
Lys Leu Leu Leu Leu Gln Arg Gln Phe Ala Ala Asp Ala Val Cys Leu  
50 55 60  
Val Leu Leu Gly Leu Glu Gly Gly Ile Glu Cys Gly Leu Gly Phe Phe  
65 70 75 80  
Gln Phe Gly Gln Thr Leu Phe Val Phe Gly Asn Leu His Arg Pro Phe  
85 90 95  
Arg Gln Phe Gly Leu Leu Phe Phe Arg Leu Gln Leu Val Phe Phe Lys  
100 105 110  
Leu His Ala Asp Leu Leu Leu Leu Leu Met Asp Ala Leu His Leu Arg  
115 120 125  
Leu Arg Arg Leu Leu Val Ala Phe Asp Ala Leu Val Gln Val Leu Leu  
130 135 140  
Met Ala Asp Leu Phe Phe Gln Thr Gly Asn Leu Phe Ala Gln His Ala  
145 150 155 160  
Ala Phe Val Ala Gln Phe Val His Arg Leu Leu Leu Arg Leu Phe Gly  
165 170 175  
Ser Leu Gln Gly Val Tyr Phe Val Val  
180 185

<210> 1387

<211> 504

<212> DNA

<213> Neisseria gonorrhoeae

<400> 1387

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ctgttcttga atctgcgcga gtttttcctg cacggcgatg tattcttcgt ccagcgtgtg 180  
tacggtttcg gtcaactcgt cgagcttgat gtgctgctcg tcgttttgga actcggtttc 240  
ataggcgagg gcaagctctt gccggcggtc ctgccagtcc agggtttgct gttcggagccg 300  
ggcgatttgc tgccggtagt tttgtttttg cgggttgagt ttgtggacgg cgacttcggc 360  
aagcccgtat tggcgggttg cttccaacag ggcaagctgc gcctgtttca gacggccttg 420  
ctgctcttgg cggctgtgag cgggtgtttg ctgctggtgt tcgagttcgg cggcggttc 480  
ctgcaaaagta gcgatgtcgt ctga 504

<210> 1388